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From the Editor's Desk

The leaves are turning colors, the air is getting colder, and a new edition of JPI is available! This latest edition of JPI is one of the biggest editions we have put out in many years. This is in large part due to the significant increase in quality undergraduate scholarship that is being produced at our member institutions and beyond. Congratulations to all the students and their faculty sponsors! Furthermore, we want to especially thank all of our Associate Editors and those who volunteered to be reviewers. It is because of these individuals that we are able to produce a quality product for you, the readers.

In addition to publishing JPI, this time of year is also the start of the conference season for many of our member institutions. We want to remind all students that much of the research that you read in this journal was first presented at local, regional, and national conferences. Therefore once you've presented your work, we encourage you to begin thinking about turning that presentation into a paper and submitting it to JPI.

Finally, as we do in every issue, we want to draw your attention to one of the unique features of JPI, The Elizabeth A. Dahl, Ph.D., Award for Excellence in Undergraduate Research. This award recognizes one article which is deemed to distinguish itself in undergraduate research in each issue. The award was created to celebrate the distinguished contributions of Dr. Dahl, who for 25 years as faculty member and chair of the Psychology Department at Creighton University, challenged, guided, and supported numerous undergraduate students in the design and execution of research, and the scholarly communication of results.

Good luck to all on a productive and enjoyable academic year . We can't wait to see everyone at con-

ferences this year and to see what you've been producing!

Best regards,

Jenn Bonds-Raacke and John Raacke

Managing Editors

Acknowledgement: Reviewers

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Institutions & Organizations

Cover:

Logo: The creation of the graphic for the logo came about by thinking of how ideas are formed and what the process would look like if we could see into our brains. The sphere represents the brain, and the grey matter inside consists of all the thoughts in various stages of development. And finally, the white spotlight is one idea that formed into a reality to voice. The entire logo is an example of creation in the earliest stages.

Cathy Solarana, Graphic Designer

Testosterone and Sex Differences in Spatial Navigation

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Abstract—Stereotypically, men have the upper hand when it comes to spatial navigation tasks; this advantage has been thought to be due to levels of testosterone in the male body (Moe, Meneghetti, & Cadinu, 2009; Weiss, Kemmler, Deisenhammer, Fleischhacker, & Delazer, 2002). In the present study, salivary testosterone in both sexes was tested to determine its association with visuospatial navigation skills. Specifically, visuospatial navigation skills were measured by time to complete a paper maze. In addition to testosterone levels, half of the participants were provided with landmarks and directions to complete the maze (experimental group), while half were not (control group). Although no significant effect of maze condition occurred ($p > .05$), men did outperform women across both maze conditions ($p < .0001$). In addition, a negative correlation showed that higher levels of testosterone were associated with faster maze completion for both men and women ($p < .0001$). Finally, there was a significant positive correlation between how close a woman was to ovulation and her level of testosterone ($p < .0001$), and a negative correlation between how close a woman was to ovulation and her maze completion time ($p < .0001$). Implications regarding the association between hormones and spatial skills for both sexes are discussed.

Keywords: testosterone, sex differences, spatial navigation, ovulation

One stereotype about men and women is that men are better at spatial navigation tasks, such as reading a map or driving. Though stereotypes are typically exaggerated, out-of-date, and damaging in a variety of ways (see Whitley & Kite, 2010), research has found that perhaps due to evolutionary demands, some men do seem to have an advantage over women in these particular cognitive skills (e.g., Weiss, Kemmler, Deisenhammer, Fleischhacker, & Delazer, 2002). This advantage in spatial navigation and mapping has been biologically linked to hormones circulating in the body, including specifically, testosterone.

In a study conducted as recently as 2009 (Moe, Meneghetti, & Cadinu), it was determined that prenatal activation of specific areas of the brain that are associated with spatial navigation are noticeably "enhanced" in men, compared to women. This is attributed to the levels of circulating testosterone in men, which are between three and ten times higher than in women. The purpose of the present study was to further investigate chromosomal sex differences between men and women in spatial navigation and in the levels of circulating testosterone in their bodies.

Previous studies have also investigated the effects of testosterone on the body and on cognitive skills (e.g., Chamizo, Artigas, Santsa, & Banterla, 2011; Moffat, Hampson, & Hatzipantelis, 1998; Saucier, Bowman, & Elias, 2003; Shirtcliff, Granger, & Likos, 2002). Though it would be ignorant to claim that women are not at all comparable to men when it comes to map-reading and other visuospatial tasks, there are notable patterns of sex differences that have been acknowledged and supported by many studies over the last two decades. For example, in 2005, Driscoll, Hamilton, Yeo, Brooks, and Sutherland (2005) determined that men's undeniable advantage in spatial tasks such as mental rotation and novel-map navigation is attributed to testosterone levels. In this experiment, researchers examined groups of both male and female partici-

pants to determine if there was a negative correlation between testosterone levels and the time it took both groups of participants to complete the Virtual Morris Water Task (VMWT). The VMWT is a pool of water with two platforms that are only covered by two inches of water and participants must remember where the platforms are in the pool. To measure testosterone, the researchers used salivary assays and ran them through a standard Enzyme-Linked Immunosorbent Assay (ELISA) experiment protocol; this is the standard method for measuring current levels of testosterone. One of the most notable conclusions that can be drawn from this study is the differences between the two sexes of the participants. Male participants held a significant advantage when it came to spatial navigation, which confirmed evolutionary psychologists' beliefs concerning men's inherent advantage in visuospatial tasks due to levels of testosterone circulating in the body.

This type of sex difference can often be applied in workplace settings and is the basis for many stereotypes that are present in today's society, which is one reason why the present study is important. For example, women are more likely to hold positions which involve more social interaction and verbal communication such as receptionists and secretaries, whereas jobs associated with spatial navigation and cognitive mapping (e.g., pilots and architects) are more likely to be held by men (Dabbs, Chang, Strong, & Milun, 1998). Many other effects of these stereotypes regarding sex differences exist. Because men have an evident advantage in tasks that require spatial navigation and cognitive mapping, some men are reluctant to ask other men for directions as it may make those around him question his "manliness," ability to read maps, and ability to navigate his way to his destination. Thus, the importance of understanding sex differences and their multiple social effects is important from both a biological and psychological perspective.

The research summarized above led to Hypothesis 1 of the current study: Male participants will outperform female participants when given a novel maze task.

Though the research summarized so far indicates fairly stable between-sex differences, the level of testosterone in any given man or woman should be the key to predicting spatial navigation, more than simple chromosomal sex. In other words, within-sex differences should also emerge, with either men or women who have higher levels of testosterone outperforming people with lower levels of testosterone. Testosterone also exists in women, and any given woman experiences fluctuations in her current hormone levels each day. In the years between puberty and menopause, women go through monthly menstrual cycles. During these monthly cycles, women experience noticeable fluctuation in key sex hormones in their bodies (Sadava, Hillis, Heller, & Berenbaum, 2009), including testosterone. Testosterone levels are the highest in women during a period of their cycle known as ovulation, which occurs 12-17 days into the menstrual cycle and is when women are the most likely to become pregnant.

With the knowledge that testosterone is linked to increased spatial navigation ability (Spritzer et al., 2011; Spritzer et al., 2013), numerous researchers have tested whether or not women experience a "boost" in their spatial navigation ability during specific periods of their menstrual cycle when testosterone levels are highest. One such study (Burkitt, Widmann, & Saucier, 2007) examined the effects of testosterone on male and female participants by measuring their performance on mental rotation tasks and successful navigation of a hidden platform in a virtual water maze. Participants were limited to men who had never come into contact with any type of synthetic testosterone and women who had experienced at least three regular menstrual cycles for consecutive months leading up to the experiment. Salivary assays were used to determine levels of endogenous testosterone in both male and female participants and then run through the ELISA experiment protocol to determine exact levels of circulating testosterone. Results indicated that female participants with low levels of testosterone took a greater amount of time to locate the hidden platform than both male and female participants with high levels of testosterone. Significant negative correlations were also found for the entire sample between virtual water maze performance and testosterone levels. These results indicate that high levels of testosterone in both men and women are positively correlated with spatial navigation abil-

ity. The research summarized above leads to Hypothesis 2 in the current study: For both male and female participants, there will be a negative correlation between testosterone levels and speed of maze completion. In other words, more testosterone in either sex will be associated with better maze ability.

In addition to simple sex or hormonal differences in ability, some studies have examined specific differences between men and women regarding their strategies and methods of reading maps and navigating in space. Many real-world applications of spatial navigation strategy exist. Whether it is determining the quickest way to get to the office in the morning while avoiding traffic, or trying to figure out which route through the grocery store will prove to be the most efficient, spatial navigation is very relevant and consequently very important to everyday life. Some men are more likely to use cardinal directions and geometric information while navigating their way through a city or giving directions (e.g., "go two miles north, then turn east for a few blocks and you should be there") (Sandstrom, Kaufman, & Heutel, 1998, p. 354). On the other hand, some women are more likely to use specific landmarks to orient themselves and help them to arrive at their destination more quickly (e.g., "drive for a little bit until you see that run-down McDonald's then take a left and the building should have a large blue sign in front of it").

An experiment investigating these differences (Sandstrom et al., 1998) asked both male and female participants to navigate through a virtual water maze after being given both landmark information (e.g., "turn left at the blue flower") as well as geometric information of the room (e.g., "turn left after you have gone 15 feet"). Upon manipulations of specific environmental characteristics, it was determined that female participants relied heavily on landmark cues for navigation, whereas male participants used both landmark cues and the given geometric information. It was concluded that these differences may have been attributed to hippocampal activity and more specifically, the effect testosterone has on the hippocampal region during development and lateralization.

Another study investigating these differences further explored variances between navigation strategy and geographic knowledge in men and women (Dabbs et al., 1998). Participants were given spatial memory tasks and asked to give directions from a local map to someone who was unfamiliar with the area. Their results indicated that male participants held the advantage in mental rotation ability, though both male and female participants performed similarly in object location memory. In the portion of the experiment that involved giving directions from a local map, male participants were more "Euclidian and abstract" (p. 89) and favored the use of cardinal directions, whereas female participants were more "personal and favored the use of objects" (p. 89) such as landmarks and left-right terms. Based on the research summarized here, Hypothesis 3 of the current study was that participants given directions to a maze based on landmarks would outperform participants given no directions (control group). Further, Hypothesis 4 stated there would be an interaction effect such that discrepancies between male and female participants would be greater in the control group, compared to the experimental group. In other words, sex differences would be larger when no directions are given; when landmarks and directions are provided, the sex difference was expected to significantly diminish.

Method
Participants

Participants were 72 undergraduates (40 male and 32 female) enrolled in introductory psychology or biology courses at a small, Midwestern, private university. Participants received extra credit for their participation. Participants ranged between 18 and 24 years old ($M = 20.08$, $SD = 1.36$) and were 80.56% Caucasian, 8.33% Hispanic, 8.33% African-American, and 2.78% Asian.

Materials and Procedure

Sex was self-reported in the demographic survey given to all participants prior to completing a paper maze. Testosterone levels were measured using a salivary assay kit with biomarkers that tested for circulating testosterone levels in the body. All participants were asked to spit sev-

eral times into a small plastic container. Once saliva samples were collected, they were analyzed using the standard ELISA protocol (Testosterone Salivary Immunoassay Kit, Salimetrics, LLC, Carlsbad, CA). The ELISA protocol uses antibodies and the resulting color change to identify a substance, or the amount of a particular substance. The ELISA protocol is a very sensitive and effective diagnostic tool that has been used for diagnostic purposes in medicine, and can detect very minute differences in enzyme levels.

After all the samples from participants were placed in the ELISA microtiter plate and the reaction was allowed to happen, the resulting color changes in the wells were documented using software that has the ability to determine the change in color, and the resulting differences in testosterone based on the color change. The range of testosterone in the current sample was from 298 ng/dL to 1982 ng/dL (M = 1159 ng/dL, SD = 516.50). The mean for women was 629.30 (SD = 160.30), and the mean for men was 1583.60 (SD = 223.60), which aligned with typical testosterone rates for people in this age range (Torjesen & Sandnes, 2003).

Two versions of the maze were created and randomly assigned to participants. The control maze was a simple drawing on a standard 8½ x 11 piece of paper (created by the authors; see Appendix A). The experimental maze was the same basic design, but had landmarks scattered throughout the paths (e.g., a gold star, a blue flower; see Appendix B). The experimental group also received written directions that explained the correct route through the maze based on the landmarks; they were given ten seconds to memorize the directions prior to starting the maze. The control group received no landmarks and no directions. Time to complete the maze was measured in seconds, including up to two decimal places. The experimenter timed each participant using a stopwatch application on an iPhone.

Upon volunteering for participation in this study, participants signed a consent form and completed a demographic survey. No instructions were given for participants to arrive at the study under certain conditions, such as without eating or exercising beforehand. Women were given an additional form that asked for information pertaining to their menstrual cycle; they marked on a calendar when their last cycle took place. Participants were then randomly assigned to either the control or experimental maze conditions and timed. Immediately upon maze completion, they gave a small (5-10 uL) saliva sample which was then frozen in a cryogenic freezer kept at -80oC until analysis was
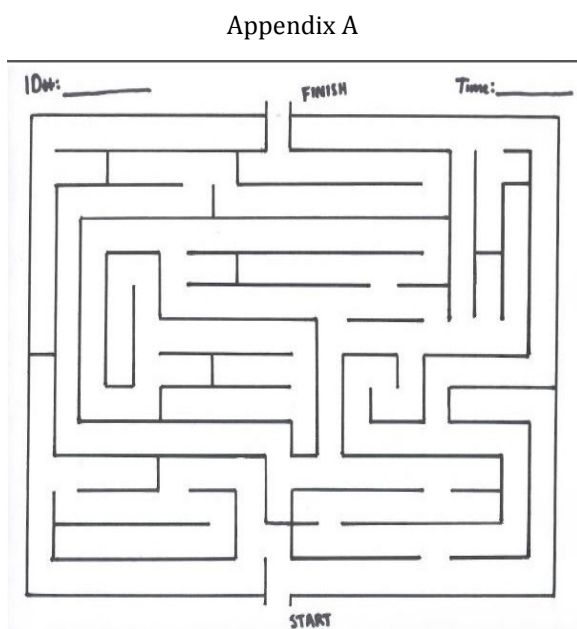
Appendix A

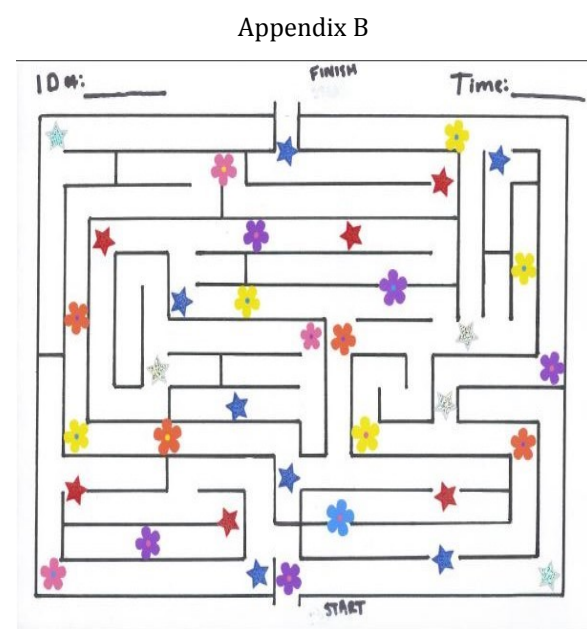Figure 1. Image of control maze.

Appendix B

Figure 2. Image of landmark maze.

completed to measure testosterone. Participants did not rinse their mouths or take a drink before providing their saliva. After completing the saliva sample, participants were thanked and dismissed. This procedure was approved by the hosting university's Institutional Review Board for ethics.

Results

Before testing the effects of participant sex (Hypothesis 1), maze condition (Hypothesis 3), and the interaction effect (Hypothesis 4), a correlation tested Hypothesis 2. Hypothesis 2 suggested that for all participants, a negative correlation would emerge between testosterone levels and maze completion time. As expected, there was a significant negative correlation [$r(72) = -.68$, $p < .0001$] between the amount of time it took participants to complete the maze and their testosterone level. Thus, Hypothesis 2 was supported.

To test the remaining hypotheses, a two-way ANOVA was completed with sex and maze condition as the independent variables, and maze completion time as the dependent variable. The interaction effect was not significant, $F(1, 68) = 0.15$, $p > .05$, $\eta^2_p = .002$. The male participants in the landmark group ($M = 24.76$ seconds, $SD = 11.40$) and in the control group ($M = 28.57$, $SD = 11.06$) both took less time to complete the maze than did female participants in the landmark group ($M = 40.87$, $SD > 57.4^2$) or the control group ($M = 42.34$, $SD = 15.19$). Therefore, male participants on average always outperformed female participants. Thus, Hypothesis 4 (which expected that discrepancies between male and female participants would be greater in the control group compared to the landmark group) was not supported.

Next, the main effects of sex and experimental condition were also examined. As indicated by the means above, there was a significant main effect for sex (Hypothesis 1). Across maze condition, male participants completed the maze much more quickly ($M = 26.66$ seconds, $SD = 11.25$) than female participants ($M = 41.60$ seconds, $SD = 13.96$), $F(1, 68) = 24.95$, $p < .0001$, $\eta^2_p = .268$. However, the main effect for influence of maze condition (landmark vs. control) was not significant. Across sex, participants in the landmark group were, on average, only about three seconds faster ($M = 31.92$ seconds, $SD = 14.48$) than the control

group ($M = 34.69$ seconds, $SD = 14.61$) and this difference was not enough to be significant, $F(1, 68) = 0.78$, $p > .05$, $\eta^2_p = .001$. Thus, there did not seem to be much difference in maze difficulty across condition. In summary, Hypotheses 1 and 2 were supported, but Hypotheses 3 and 4 were not.

Additional Analysis

For exploratory purposes, analyses were also completed to measure women's levels of testosterone relative to where they were in their menstrual cycle. Two steps were taken in these analyses. First, it was expected that women who were closer to ovulation (and thus further away from a menstrual cycle) would have higher levels of testosterone. This was measured by taking women's self-reported number of days since their last cycle began and subtracting fourteen, then using the resulting number's absolute value. Thus, the possible range for this variable was zero (indicating a woman was currently menstruating) up to fourteen (meaning she was currently at least close to ovulating). A number such as a 5 would indicate that she was either going to ovulate in approximately five days, or that she had ovulated about five days ago. As expected, there was a positive correlation between how close a woman was to ovulating and her level of testosterone, $r(32) = .64$, $p < .0001$.

Next, for only the women participants, we correlated level of testosterone and time to maze completion (this was similar to the test for Hypothesis 2, but focusing only on the women). This correlation was also significant, $r(32) = -.68$, $p < .0001$. Finally, the correlation between how close a woman was to ovulating and her maze completion time was also significant and positive, $r(32) = .65$, $p < .0001$. Thus, women's spatial skills and levels of testosterone both seemed to increase when they were close to ovulating.

Discussion

By conducting this research, we hoped to better understand the association between testosterone and visuospatial navigation in both men and women. We were also trying to determine if women who were close to ovulation had higher levels of testosterone than women who were close to menstruation, and if this testosterone was asso-

ciated with better performance in a navigational task. Findings of the current study strongly supported two of our hypotheses, that men would have higher levels of testosterone than women, and would complete the maze in a shorter period of time. However, two other hypotheses were not supported. This lack of significance could have been due to a maze that was not particularly difficult, restricting the range of completion time for the results. However, the effect sizes for the main effect of condition and for the interaction were extremely small, possibly indicating a lack of anything to find.

Additional analyses indicated that women who were ovulating had up to two and a half times as much testosterone circulating in their bodies compared to women who were menstruating. These results also suggested a direct link between testosterone levels and an individual's visuospatial-navigational skills. On average across both conditions, men finished the maze roughly 15 seconds faster than women, which also provides more evidence supporting testosterone's importance in visuospatial navigation. In short, although men on average were better at maze completion, this could have been due to higher testosterone, as women who were ovulating and thus also had higher levels of testosterone, were significantly better at the maze than women who were menstruating.

Limitations and Future Research

Even though all of the correlations found in the current study showed statistical significance, it is important to note that without an experimental method, causation cannot be inferred. Thus, it is impossible to conclude only from the present data whether individual differences in testosterone were the cause of individual differences in spatial navigation ability. Indeed, even strong correlations such as the ones found here (rs ranging from .64 to .68 and all ps < .0001) only account for approximately 40-46% of the variance found in the sample. Clearly, other factors are at play in predicting spatial navigation.

Other hormones or biological differences that might have an influence were not studied; this research focused only on testosterone. For example, future research could investigate the associations of estrogen (Choi & Silverman, 2002) and/or

cortisol (Berteau-Pavy, Park, & Parker, 2007; Schwabe et al., 2007) and spatial navigation. Completing a multitude of assays specifically designed to look for other biomarkers would give researchers a better understanding of how all three levels of these hormones work together to generate increases or decreases in navigational skills and spatial navigation strategy (Spritzer et al., 2013). Again, experimental studies would further provide information regarding the causal nature of these associations.

In addition, a limitation of the current study was that we only measured testosterone levels and maze ability a single time. The immediate collection of saliva (after maze completion) was fast enough to be relatively sure that testosterone levels did not fluctuate in the few seconds between the task and the sample being provided (Schurmeyer, Wickings, Freischern, & Nieschlag, 1983), and this single cross-sectional data sampling method were still useful. However, future research might measure a single person's levels of testosterone and spatial abilities over time, so as to further explore the idea of within-subject changes. This procedure would require much more invasive and time consuming (i.e., a longitudinal design), and hence was beyond the scope of the current project.

Future research would also benefit from a much larger sample size to more accurately determine the exact correlation between testosterone and visuospatial navigation in a more representative sample. In addition, future research would benefit from providing participants with a more difficult maze in order to potentially increase the difference in time between those with high levels of testosterone and those with lower levels of testosterone, and the difference between those given landmarks and directions compared to those in the control group. As stated above, both a larger range of results and larger sample size would increase the statistical power of analyses.

Another possible criticism of this study could be that it tested spatial navigation only using a 2D (two-dimensional) task instead of using a 3D task. Though many of the studies discussed in the literature review were completed with 3D tasks, past research has established that 2D tasks are still informative for exploring spatial navigation ability

(Van Orden & Broyles, 2000). For example, Van Orden and Broyles compared human performance on several 2D and 3D display formats across four visuospatial tasks. In this experiment, participants' speed and accuracy were measured while completing 2D ("plan view"), 3D volumetric, and 3D stereo-based tasks. Participants were qualified military personnel and civilian air traffic controllers, who completed altitude and speed judgment tasks, a collision avoidance task and a vectoring task. The authors concluded that 2D plan view tests yielded similar performances as any other display system for both speed and altitude testing. Other researchers have also used 2D tasks for spatial navigation (Cockburn & McKenzie, 2002; Collaer, Reimers, & Manning, 2007; Kjelldahl, 1995; Tippet et al., 2009).

Next, although the main effect of sex for maze completion time was significant, the variance was also substantial (around 12 seconds for a task that took about 30 seconds). There were considerable individual differences as well, such that some women were faster than some men. In addition, the lack of significant findings for the maze condition may have been a result of lack of procedural control over work quality in the task. Past research has found, for example, that prior training improves spatial performance in women more than in men (Feng, Spence, & Pratt, 2007). Other factors such as the specific stimuli used (Alexander & Evardone, 2008) and task instructions (Sharps, Price, & Williams, 1994; Sharps, Welton, & Price, 1993) can also significantly affect gender differences in spatial tasks. Although this study did manipulate task instructions, there are a wide variety of ways that instructions may help or hinder performance; only one of those options was explored here.

Finally, an important limitation to the procedure was that the participants were not asked to follow any instructions before arrival to the study. Standard protocol for the ELISA kit used in this study is as follows: "Avoid sample collection within 60 minutes after eating a major meal or within 12 hours after consuming alcohol. Acidic or high sugar foods can compromise assay performance by lowering sample pH and influencing bacterial growth. To minimize these factors, rinse mouth thoroughly with water 10 minutes before sample

is collected" (Testosterone Salivary Immunoassay Kit, Salimetrics, LLC, Carlsbad, CA, p. 6). These instructions were not followed in the current study, an oversight that may have affected results in a variety of ways, including even greater disparity of variance across conditions. All of these limitations may have greatly affected the results, and therefore implications of the current study should be made with caution.

Conclusion

Despite the limitations of this research, its value is noteworthy nonetheless. Even though two hypotheses were not supported, the results did indicate a strong relationship between testosterone and visuospatial navigation skills. The current study also suggests several additional avenues of future research. Certainly, everyday examples of navigation in the "real world" are affected by many confounding variables going beyond simple biomarkers, such as opportunities to practice skills, distraction, and the self-fulfilling nature of gender stereotypes. It is clear that this study is just one small part of a larger program of research that is needed on the topic of sex, hormones, and spatial navigation. Caution must be maintained in making any conclusions about gender differences in a particular task, and what the implications of those differences may be, to avoid sexist or prejudiced policies. Future research on this topic is indeed warranted.

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The Old and the Restless: Age and Gender Stereotyping Among Younger and Older Adults

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Abstract—Age and gender stereotypes are likely to interact to influence social judgment. This study manipulated the age (older versus younger) and gender (man versus woman) of target individuals among participants of two age groups to examine the joint impact of these stereotypes on social perception. As predicted, younger participants rated the younger male target more positively, relative to the older male target. The younger male target was rated equally warm and competent, whereas the other targets were rated higher on one dimension than the other. Contrary to expectation, there was no difference between younger and older participants' ratings. Results indicated that social perceptions were influenced by both gender and age stereotypes, and that these differences were in line with perceptions of older and younger men and women's warmth and competence.

Keywords: ageism, gender, stereotypes, warmth, competence

The American culture continuously reminds its people that age is something to reverse or slow down. For example, sixteenth birthday cards remind the recipient to "live it up," and emphasize a full life ahead, but by age 40, birthday cards refer to the recipient as "over the hill," suggesting that a decline in physical and mental health is imminent. Media is one source of negative attitudes toward older people. Lee, Carpenter, and Meyers (2007) found that a mere 15% of television advertisements featured older adults. The Theory of Disengagement states that this under-representation of older adults on television reinforces a separation of older individuals from younger individuals and creates a psychological sense of "us" versus "them" (Chen, 2003). As a result, the population as a whole, and young people in particular, develop negative attitudes and inaccurate beliefs about older people.

Research on age stereotypes often focuses on older people as a single category. In fact, multiple stereotypes are likely to act in concert to influence perceptions of older individuals, including gender, race, age, and attractiveness (Schmidt & Boland, 1986). In particular, many questions remain about the joint effect of age and gender stereotypes. Older women are particularly underrepresented in media (Lee et al., 2007), and research on the double standard of aging shows that older women are viewed more negatively than older men (Berman, O'Nan, & Floyd, 1981; Deuisch, Zalenski, & Clark, 1986). Yet, a recent study found that an older female target (i.e., 70-85 year-old) was perceived more positively than a male target of similar age (Narayan, 2008). Further research is needed to examine whether women are judged more harshly than men as they age and to trace the nature and origins of stereotypes toward older men and women.

Content of Gender and Age Stereotypes

In past decades, social psychologists have developed and tested a variety of theories of gender and its impact on social judgment (Wood & Eagly, 2010). One area of study is the content of gender stereotypes. A gender stereotype has been defined as a generalized impression about a group of people based on their gender (Comer & Gould,

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2011). Social Role Theory states that stereotypes of men and women originate in their societal and family roles. Because for a long time in our societal history, women were solely responsible for the domestic work of childcare, they are often seen as more communal and nurturing; whereas men, who were traditionally breadwinners and public figures, are often viewed as more agentic and assertive (Eagly, 1987). These basic features of gender stereotypes have found support in studies over a long time period and appear to be largely consistent across cultures (Williams & Best, 1990). Stereotype researchers further classify gender perceptions along two primary dimensions of social perception: warmth and competence (Fiske, Cuddy, Glick, & Xu, 2002). The "typical woman" is rated high in warmth and low in competence, whereas the "typical man" is rated low in warmth and high in competence (Eckes, 2002). Some subtypes of men tend to be rated high in warmth and competence, including fathers (Cuddy, Fiske, & Glick, 2004) and professors (Eckes, 2002).

An age stereotype has been defined as a generalized impression of a group of people based on age (Comer & Gould, 2011). Research on the content of age stereotypes indicates that warmth is a key component of stereotypes of older adults across cultures (Cuddy, Norton, & Fiske, 2005). Another study found that elderly targets were viewed as incapable and useless and rated as high in warmth and low in competence, similar to blind people, people with physical or intellectual disabilities, and stay-at-home individuals (Cuddy et al., 2005; Fiske et al., 2002). More broadly, examining warmth and competence stereotypes allows a bridge between studies of individual social groups. If gender impacts the way older adults are viewed, the dimensions of warmth and competence may shed light on how gender and age stereotypes intersect to influence perceptions of older people.

Application of Gender and Age Stereotypes

Considering that gender and age are both highly salient social characteristics and that individuals are members of more than one of these groups, an intersectional approach can advance an understanding of how these stereotypes affect everyday social judgments (Kite, Deaux, & Miele, 1991). The double standard of aging is one joint effect of age and gender examined in previous research. Such research indicates that as women age, they are judged more harshly than aging men, especially with regard to their attractiveness. For example, a meta-analysis of age and gender stereotyping research found that the gender of a target influences judgments of attractiveness such that older men were rated more attractive than older women (Kite, Stockdale, Whitely, & Johnson, 2005).

Moving beyond judgments of attractiveness, Narayan (2008) examined young adults' attitudes toward older men and women. The study consisted of several questionnaires including the Aging Semantic Differential (ASD), which consists of bipolar adjective pairs such as cheerful and crabby. Undergraduate student participants received descriptions of two targets: "a man of 70–85 years of age" and "a woman of 70–85 years of age." Results indicated that the female target was rated more positively than the male target. These findings complement and extend research on attractiveness judgments by demonstrating that on some dimensions, older women are perceived more positively than older men.

Using a different method to examine the intersection of gender and age, Kite and colleagues (1991) prompted participants to freely generate descriptions of 35-year-old and 65-year old male and female targets. The researchers categorized the descriptions of the targets as feminine or masculine by traits (e.g., kind, self-confident), role behaviors (e.g., financial provider, cooks meals), and physical characteristics (e.g., graceful, sturdy). Consistent with the warmth and competence stereotypes described above (Cuddy et al., 2005), the study found that older people were less likely to be ascribed masculine characteristics, whereas the perception of feminine characteristics was unaffected by aging. Older targets were also more likely to receive negative evaluations, supporting the researchers' conclusion that age stereotypes can "outweigh" gender stereotypes in judgment.

Other researchers have manipulated the age of the target, with the expectation that targets of very advanced age would be subject to more age-related biases than middle-aged or moderately elderly targets. Meta-analytic evidence showed that as target age increases, age-related biases also increase (Kite et al., 2005). The age of the perceiver

may also have an impact on social judgment: Will adults whose ages vary view older adults differently? The same meta-analysis found no difference in social judgments based on the age of perceiver when investigating judgments of targets, although other recent research has shown stronger biases among individuals in their 40s and those in their 80s and 90s (Davis & Friedrich, 2010).

Study Overview and Hypotheses

The current study manipulated the age and gender of a target using pictures instead of written descriptions and included measures of the two major dimensions of social perception (i.e., warmth and competence) alongside more general measures of positivity and negativity. These methods allowed us to extend previous work by unifying participants' interpretations of the target age and gender manipulations and by examining the traits that underlie general positive or negative impressions of older adults. The current study also examined the effect of the age of the perceiver on age and gender stereotyping by including participants from two age groups.

We hypothesized that younger participants would perceive older adults more negatively compared to the older participants (H1). The hypothesis was based on research by Davis and Friedrich (2010). In a study of men and women age 40 to 92, these researchers found that individuals age 40 to 49 and age 80 to 99 had the most negative biases toward aging. We aimed to expand the age range represented in this previous study by including younger, college-age adults. Based on the Theory of Disengagement, which argues that a social separation of older adults creates a sense of "us" versus "them" (Chen, 2003), we expected that younger adults would show especially negative biases toward older targets.

Our second hypothesis was that among younger participants, age and gender stereotypes would interact such that the younger male target would be described in more positive terms than the older male target, and the older female target would be viewed more positively than the younger female target (H2). This hypothesis was derived from research by Narayan (2008), in which older male adults were rated more negatively overall than older female adults. To formulate our more complex hypothesis that also considers the impact of gender, we drew on previous research on warmth and competence stereotypes of men, women, and older adults. As described above, as people age, they are viewed as less competent yet more warm (Cuddy et al., 2005; Kite et al., 2005). We expected that these differences in ascribed warmth and competence would result in a positive shift in overall perceptions of women, and a negative shift in perceptions of men. For this hypothesis, we examined only the college-age participants in our sample in order to be consistent with previous research (i.e., Narayan, 2008).

Third, we hypothesized that the young male target would be viewed as equally warm and competent, whereas the other targets would be viewed as higher in either warmth or competence, and lower in the other (H3). This hypothesis is based on the insights of previous research on warmth and competence stereotypes (Cuddy et al., 2005; Fiske et al., 2002). As described above, this research found that older adults were rated higher in warmth than in competence (Cuddy et al., 2005). Some subgroups of men were rated similarly warm and competent, whereas subgroups of women showed "mixed" stereotypes that were higher on one dimension than the other (Cuddy et al., 2004; Eckes, 2002). To formulate a hypothesis that considered both age and gender, we reasoned that in the eyes of our college-age participants, the younger male target would be perceived similar to high competence/high warmth subgroups of men, fathers and professors. Following from previous studies, we expected that women and older men would fall into one of the mixed stereotype categories.

Method

Participants

Participants (n =189) were recruited for a study on how we form first impressions of others." The group included two participant pools of different ages. The first consisted of 167 undergraduate student participants (55 men and 112 women) whose ages ranged from 18 to 29 years (M = 18.92, SD = 1.31) who completed the study in exchange for extra credit in a general psychology class. The second consisted of 31 non-student participants (12 men and 19 women) whose ages ranged from

37 to 75 years ($M = 55.61$, $SD = 8.97$), who were recruited through snowball sampling via email. Participants in this group were entered into a drawing for a gift card in exchange for their participation. Participants described themselves as White (94%), Asian/Pacific Islander (1.5%), Hispanic (1.5%), Black (1%), Native American/American Indian (0.5%), and "other" (1%).

Materials and Procedures

This study manipulated the age (older/younger) and gender (man/woman) of target individuals among participants of two age groups to examine the joint impact of age and gender stereotypes on social perception. The dependent measures included the overall impression of each target (positive/negative) and warmth and competence ratings of each of the targets. Participants were randomly assigned which target picture and age descriptor they saw first, as set up through an online survey tool.

A set of 10 pictures (5 men and 5 women) were pre-tested in a pilot study conducted on a separate sample of 50 undergraduate students. All pictures were gray scale headshots. Participants estimated the age of the individual in each picture and then rated each individual on a variety of traits using a 7-point Likert-type scale from 1 (*not at all*) to 7 (*extremely*). Two of the pictures were chosen for the study, one man and one woman. Both pictures were rated equally on attractiveness (Men: $M = 3.54$, $SD = 0.23$; Women: $M = 4.12$, $SD = 0.24$; $p > .05$), age (Men: $M = 58.4$, $SD = 7.9$; Women: $M = 57.8$, $SD = 8.0$; $p > .05$), warmth (Men: $M = 5.00$, $SD = 1.10$; Women: $M = 4.83$, $SD = 1.12$; $p > .05$) and competence (Men: $M = 4.72$, $SD = .86$; Women: $M = 4.74$, $SD = 1.06$; $p > .05$). To produce believable manipulations of the perceived age of the targets in our study, we took the mean estimate of the age of each target, added the standard deviation to the mean to get the older target age, and subtracted the standard deviation from the mean to produce the younger target age.

The procedures of this study were approved by the Institutional Review Board at a mid-sized Midwestern university. Study materials were administered via an online survey. After giving their informed consent, each participant saw pictures of two target individuals, one man and one woman, one of which was described as older, and one of which was described as younger. Pre-testing indicated that the male and female targets were estimated to be about the same age and were rated equally attractive, warm, and competent. Participants only saw one target picture at a time and were presented with an age description: "a 48–year old" or "a 68–year old." After viewing the target picture with the specified age, participants generated five characteristics describing the target and then categorized those characteristics as positive, negative, or neutral to form a measure of their overall impression of the target. Next, participants rated the target on a series of attributes using 7-point Likert-type scales. These particular attributes measured warmth and competence. In the next phase of the survey, the participant viewed the other photo (i.e., if they had seen a man, they now saw a woman, and vice versa), with the other age label (i.e., if they saw "48-year-old" in the first phase, they now saw "68-year-old"). The participants followed the same line of questions with this target. Finally, participants estimated the age of each target as a manipulation check. The data indicated that the age manipulation successfully influenced perceptions of the target's age.[1] At the end of the survey, participants answered questions about demographic characteristics, which included age, gender, ethnicity, and education.

To measure participants' overall impressions of the targets, the authors created a measure that combined the positivity and negativity of participants' impressions. Participants generated five characteristics to describe each target and then categorized each characteristic as positive,

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[1] Estimates of the male target's age when he was presented as 48 years old were significantly different from estimates when he was presented as 68 years old ($M = 51.77$, $SD = 4.90$; $M = 60.67$, $SD > {}^0.{}^37$, respectively; $p \neg .49$). However, estimates of the female target's age were not significantly different across condition ($M = 54.23$, $SD = 7.34$; $M = 63.04$, $SD = 6.24$, $p ° .49$). Upon further examination of the distribution of the female target age guesses, we found some high age estimates that appear to have influenced the manipulation check. Specifically, several participants assigned to the "48 years old" condition estimated the female target's age to be over 70 years. However, this was a small number of participants, leading us to believe that the manipulation of the female target's age was successful among most participants.
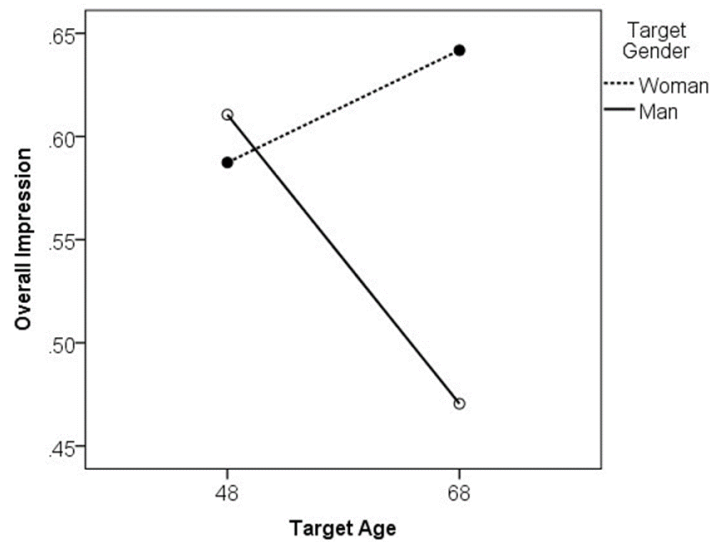
Figure 1. *Overall Impression as a Function of Target Age and Gender*

neutral, or negative. Values were assigned to each categorization: positive (+1), neutral (0), and negative (-1), and values were then averaged to create a measure of overall impression (M = 0.58, SD = 0.38).

Participants' perceptions of the target's warmth and competence were measured using 24 items that were selected based on previous research (Fiske et. al., 2002; Thornton, 2002). Traits used to measure warmth were tolerant, warm, good-natured, sincere, trustworthy, happy, loving, sensitive, patient, as well as three reverse-coded items: unaffectionate, selfish, and conceited. Competence traits included hardworking, efficient, mentally sharp, able to learn, competent, confident, independent, competitive, intelligent, educated, economically successful, holds prestigious jobs, and one reverse-coded item: unpredictable. These items were presented as, "To what extent do you find this person . . ." Participants responded to each item on a 7-point Likert-type scale from 1 (*not at all*) to 7 (*extremely*). Means were computed across items to form scales of warmth (M = 5.47, SD = 1.00, α = .93) and competence (M = 5.26, SD = 0.89, α = .90). Higher scores on each scale indicated greater warmth or competence.

Results
Overall Impression

To assess H1, we tested for differences between the older and younger participant groups' overall impression ratings of the targets using an independent samples t test. There was no significant difference between older and younger participants' responses, indicating that our hypothesis was not supported, $t(395)$ = 1.15, p > .05.

To test H2, we examined participants' overall impression scores in a three-way ANOVA with target age (younger/older) and target gender (man/woman) as the independent variables, and order of presentation (male target first/female target first) included as a control variable. Because this particular hypothesis was based on research conducted among college-age participants, only younger participants were included in this analysis. As shown in Figure 1, a significant target age by target gender interaction was found, $F(1, 327)$ = 5.69, p < .05. Tukey's Honestly Significant Difference (HSD) tests indicated the younger male target was described in more positive terms than the older male target (Younger: M = 0.64, SE = 0.04; Older: M = 0.48, SE = 0.04, p < .05). For the female targets, the older woman was seen more positively than the younger woman, but this difference did not reach statistical significance (Younger: M = 0.60, SE = 0.04; Older: M = 0.63, SE = 0.04, p > .05). Thus, the second hypothesis was partially supported. The younger male target was described more positively than the older male target, whereas the older and younger female targets were described similarly.

Warmth and Competence Ratings

To test H3, we examined the warmth and competence ratings of the younger participant group using paired samples t tests. These tests compared the younger participants' ratings of the targets' warmth to their ratings of the targets' competence. The mean warmth and competence ratings for each target are presented in Table 1. Ratings of the younger man's warmth (M = 5.54, SD = 0.82) and competence (M = 5.59, SD = 0.83) did not differ from one another, $t(77)$ = -0.67, p = 0.51, d = −0.05, 95% CI [-0.21, 0.11]. Ratings of the younger woman's warmth (M = 5.70, SD = 0.88) were significantly higher than ratings of her competence (M = 5.10, SD = 0.78), $t(79)$ = 7.18, p < .001, d = 0.60, 95% CI [0.43, 0.76]. The older woman's warmth ratings (M = 5.92, SD = 0.70) were also significantly higher than ratings of her competence (M = 5.29, SD = 0.65), $t(86)$ = 10.58, p < .001, d = 0.63, 95% CI [0.51, 0.75]. Ratings of the older man's competence (M = 5.48, SD = 0.72) were significantly higher than ratings of his warmth (M = 5.29, SD = 0.74), $t(89)$ = -2.60, p < .05, d = −0.19, 95% CI [-0.33, -0.04]. Thus, the third hypothesis was supported. The younger male target was rated equally warm and competent, whereas the other targets were rated higher on one dimension than the other.

Discussion

The purpose of this study was to examine age and gender stereotypes together in order to determine how they combine to influence judgments of individuals. We also set out to examine whether young adults' responses to age and gender stereotypes differed from those of an older participant population. Results indicated that gender and age combine to influence overall impressions of a target, as well as perceptions of the target's warmth and competence.

Similarity in Younger and Older Adults' Perceptions of the Elderly

Our first hypothesis was that younger participants would have more negative views of older adults than older participants. This hypothesis was not supported by our results. Therefore, the findings of this study were at odds with recent research that found different perceptions of the aging process among older and younger adults (Davis & Friedrich, 2010) but consistent with meta-analytic evidence that found that evaluations of older adults were similar regardless of perceiver age (Kite et al., 2005). The present study differed from that of Davis and Friedrich (2010) in that we asked participants to form impressions of individual targets based on physical appearance and an age label, rather than perceptions of the aging process: physical, psychological, and social. This difference of impression of an older individual and the aging process is not one and the same; impressions of individuals can be the formed based on the aging process, but other factors also play a role. Impressions can be formed off of how a person is smiling, their dress, and other physical properties that are not included in the aging process. Aside from the specific methodological choices that may have impacted our results, Hypothesis 1 may have failed to find support because of true underlying similarity in older and younger people's perceptions of older adults. Indeed, our results are consistent with other research demonstrating that the core components of stereotypes of older adults are shared across age groups (Hummert, Garstka, Shaner, & Strahm, 1994).

Table 1. *Competence and Warmth Ratings*

	Competence		Warmth	
Variable	M	SD	M	SD
Men				
Young	5.59	0.83	5.54	0.82
Old	5.48	0.72	5.29	0.74
Women				
Young	5.10	0.78	5.70	0.88
Old	5.30	0.65	5.92	0.70

Age and Gender Stereotypes Interact to Influence Impressions

Our second hypothesis was that, among younger participants, age and gender stereotypes would interact such that the younger male target would be described in more positive terms than the older male target, and the older female target would be viewed more positively than the younger female target. The study's findings partially supported this hypothesis and extended prior research on the overall positivity of perceptions of older adults (i.e., Narayan, 2008) by manipulating both age and gender stereotypes. We found that younger men were viewed more positively than older men, whereas older women were viewed similar to younger women. Narayan (2008) suggested that this pattern of findings may be the result of gender-specific age stereotypes that cast older women as "loving grandmothers" and older men as "grumpy old men" (Narayan, 2008). The younger man was far from the "grumpy old man" stereotype, which therefore would put the younger man into favor, relative to the older man. Because the older woman more closely resembled the "loving grandmother" stereotype, we expected that she would be rated more positively than the younger woman. Because warmth ratings of both female targets were high overall (5.70 and 5.92 on a 7-point scale), it may be that ratings of women's warmth were subject to a ceiling effect that did not allow us to detect any age-based differences. Another possibility is that our manipulation of the female target's age was not sufficiently strong or effective to detect differences on this dimension.

This research also extended previous research by including measures of the two major dimensions of social perception: warmth and competence. Our third hypothesis was that the young male target would be rated equally warm and competent, whereas the other targets were rated higher on one dimension than the other. Findings of the study supported this hypothesis. The younger male target was rated equally warm and competent, and consistent with previous research on age stereotypes. On the other hand, the older male target was viewed as lower in warmth than in competence. Consistent with previous research on gender stereotypes, the female targets were viewed as more warm than competent.

Considering our two outcome measures together, this study could provide some additional information about why age and gender influence the overall positivity or negativity of an impression. An individual may be viewed positively because he or she is seen as highly warm, highly competent, or both. The stereotype content model (Fiske et al., 2002) would suggest that the younger man gets an extra "boost" in terms of positivity because he is rated highly on *both* dimensions. This model holds that high ratings on both of these dimensions are reserved for social groups that are valued and well-liked in society (e.g., Christians, students in the United States) (Fiske et al., 2002). The consideration of these results together further suggests that the positivity often directed toward some subgroups of men may not be readily extended to men of more advanced age.

Study Limitations

There were a few limitations to our study. First, our sample of older, non-student participants could have been larger, to provide more concrete evidence that the null hypothesis was supported or to provide evidence that the null was not supported for the first hypothesis. In particular, the older participant group included a wider range of ages than the younger participant group. A broader sample of participants over age 35 could have allowed us to examine more specific age groups as in previous research. Due to the wide range of ages in the older sample, existing differences in overall impressions could have been washed out. The narrow age range of the younger participants also limited our ability to examine some of the key questions of this study. Specifically, the college-age participants were considerably younger than both the 48-year-old and the 68-year-old target, and may therefore have perceived both of the targets as "them," limiting our ability to test the Theory of Disengagement in this study as we intended.

Snowball sampling was a second limitation of this study. The sampling method was an attempt to get our survey out into the community to help gain a wider base of older participants but may have contributed to the small sample size for the older adult group.

Third, our sample was predominantly White

participants residing in the United States. If we had a more diverse sample, our results would have the potential to produce more new information about age and gender stereotyping across the population. Having a diverse sample is also important because results can further be examined by subgroups. These groups would benefit from more research in general (Allmark, 2004) and such research also has the potential to produce new insights into age stereotyping processes. Research shows that people generate a shared stereotype to the extent that they define themselves in terms of a common social category membership (Haslam, Oakes, Reynolds, & Turner, 1999). Thus, if older Black adults identify more strongly as Black than as elderly, the ability to examine racial identification in combination with age would clarify aspects of stereotypes that have been obscured in other research.

A fourth limitation was our use of an electronically distributed survey. Although electronic distribution of our materials allowed us to reach a large student population quickly and conveniently, not everyone has access to a computer, especially the older population that we were trying to target. Providing paper copies for older adults may have been one way to increase the size and diversity of our sample. Overall, we could have used a few different methods to diversify and extend our sample to better support our results.

Finally, some of the key results of this study relied on a novel measure of impression that allowed participants to generate their own characteristics to describe each target. This measure minimized experimenter biases introduced by presenting participants with a pre-determined set of traits. However, participants may have been reluctant to offer negative traits to describe the targets or to categorize their own responses as negative. Moreover, the reliability and validity of this impression scale have not been tested in other research.

Future Directions

The current study has left some questions unanswered pertaining to gender and age prejudices. First, do impressions of the elderly vary based on the age of the perceiver? Future research should address this question with a larger sample, more narrow age cohorts, and include measures of warmth and competence to further understand any differences. This would add to research by allowing scientists to examine how the use of gender stereotypes in social judgment changes as men and women get older.

Second, our research is among a small but growing number of studies that examined the intersection of age and gender stereotypes. More research should adopt an intersectional perspective, rather than examining individual stereotypes in isolation. In particular, an individual's race or ethnicity is also likely to have important implications for how individuals are perceived as they age. Research on occupational stereotyping shows that Asian Americans are seen as good candidates for high-status jobs, regardless of their individual credentials, whereas Black applicants are evaluated negatively (King, Mendoza, Madera, Hebl, & Knight, 2006). Additional research is needed to determine whether age moderates these effects. For example, older Asian Americans may not be viewed as positively as their youthful counterparts when applying for high-status jobs. Race or ethnicity could potentially influence impressions to a greater extent than age, or the particular career or job that an individual holds may be the deciding factor. This information may be useful for prospective employers or for future policies to prevent discrimination. Thus, future research needs to continue along these same lines, extending age stereotyping research to consider intersections with other social categories.

Conclusion

Overall, this study produced new insights on the impact of gender and age on impressions. Presenting the same picture with a different age label changed the nature of the overall impressions formed of the target, and also judgments of his or her warmth and competence. Gender and age are two social characteristics that are often researched separately instead of together. Through this study, we found that the two social characteristics must be considered together in order to understand the stereotyping process.

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The Effects of Drawing, Listening, and Writing on Mood

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Abstract—Moods have the power to affect how a person views the world and may be more influential in directing a person's life than the actual events the person encounters (Burke, 2013; Thayer, 1997). Previous research suggests listening to music, writing, drawing, and being exposed to nature have the power to change mood. This study compared the effectiveness of these strategies. Participants (*n* =139) were primed, using a written exercise, to be in a negative mood and then completed the PANAS (Positive and Negative Affect Scale; Watson, Clark, & Tellegen, 1988), which confirmed the priming had elicited similar negative moods across conditions. Each participant was then assigned to a mood management condition (music listening, nature listening, written reframing, drawing) or a control condition. Immediately afterward, participants completed the same mood assessment. We calculated change scores such that a higher score indicated a greater uplift in mood. Results revealed that music listening was most influential in decreasing a negative mood. Writing and music listening were both equally effective and more effective than the other strategies in increasing a positive mood. Nature listening was least effective in improving mood. Music changed participants' moods and participants accurately perceived the greatest mood change in the music condition. Participants also exhibited inaccurate perceptions. The control changed the least in actual mood change scores but perceived that they changed as much as participants in the music condition. Similarly, participants in the writing condition underestimated their mood change. When participants were asked about usefulness of strategies in real-life, they ranked music as their top choice, reflecting some everyday usage of this helpful strategy. This study supports the findings of previous research, showing that listening to music and writing are very powerful mood improving strategies.

Keywords: mood, mood change, writing, music, drawing

Mood is longer-lived than an emotional state and also lacks the intensity and specificity of emotion (Thayer, 1989). Moods have the power to affect how a person views the world and may be more influential in directing a person's life than the actual events the person encounters (Burke, 2013; Thayer, 1997). Not only does mood influence actions, it also influences the wellbeing and health of a person (Thayer, 1997). In general, a positive mood is associated with greater physical and mental health, whereas a negative mood is associated with worse physical and mental health (Diehl, Hay, & Berg, 2011; Salovey & Birnbaum, 1989). A positive mood can also increase self-efficacy in interpersonal relations, whereas a negative mood de-

creases self-efficacy in the same situation (Kanfer & Zeiss, 1983; Wright & Mischel, 1982). Because mood has such a powerful influence, researchers are interested in identifying strategies to improve individuals' moods. Four strategies that have been shown to alter mood are listening to music, writing, being exposed to nature, and drawing.

Music may be one of the most influential strategies for changing mood. Individuals who listen to music in a major chord, particularly if it has a fast tempo, show an increase in positive mood. Listening to music in a minor chord results in individuals experiencing an increase in negative mood (Houston & Haddock, 2007; Krumhansl, 1997; Larsen & Stastny, 2011; Mead & Ball, 2007). In gen-

eral, the emotional content of music results in creating or enhancing a similar emotional state for the listener (Baumgartner, Lutz, Schmidt, & Jäncke, 2006; Hunter, Schellenberg, & Schimmack, 2010). Therefore, most individuals report preferring happy music to sad music so the emotions and moods they experience will be positive (Hunter, Schellenberg, & Stalinski, 2011).

Music also can produce physiological changes in the listener (Houston & Haddock, 2007). For example, music listening has the power to increase or decrease arousal. Before having a cesarean section, women who listened to music they preferred had lower systolic blood pressure and respiratory rates during the surgical procedure than women who did not listen to their preferred music (Kushnir, Friedman, Ehrenfeld, & Kushnir, 2012). When music decreases arousal, it produces calming effects on the listener, and when music increases arousal, it has energizing effects (Lonsdale & North, 2011). Music also affects particular brain regions and neurotransmitters. Listening to music activates the limbic system, the brain region most closely associated with emotional experiences (Baumgartner et al., 2006). Salimpoor, Benovoy, Larcher, Dagher, and Zatorre (2011) found that listening to music, along with anticipating listening to music, both resulted in dopamine release, which is a neurotransmitter associated with pleasure, excitement, and rewards.

Listening to music also influences perception. Male and female adults perceived pain as less intense and unpleasant and tolerated pain longer when listening to preferred music as opposed to hearing white noise or relaxing music that was chosen for them (Mitchell & MacDonald, 2006). When rating faces as happy or sad, individuals listening to uplifting music rated the happy faces as being more happy and the sad faces as being less sad than individuals who were not listening to uplifting music (Jeong et al., 2011). Similarly, adults who listened to pleasurable music were less likely to exhibit aggressive behavior when intentionally provoked (Krahé & Bieneck, 2012).

Because music can influence mood, people often use music intentionally to do so (Sleigh & McElroy, 2014; Ter Bogt, Mulder, Raaijmakers, & Gabhainn, 2011). University students reported they found listening to music more useful than oth-

er mood management strategies, such as watching television and reading a book, and they also reported decreasing negative mood as a reason for listening to music (Lonsdale & North, 2011). In a similar study, 85% of women and 74% of men reported using music to change mood, and answered "yes" to the question: "Do you ever use music to change your mood?" (Wells, 1990). The more engaged the listener is in the listening experience, the greater the influence of the music on mood and perception (Ter Bogt et al., 2011).

Like music, writing has also been shown to be an effective way to alter mood. Positive moods generally result from writing about positive experiences, and negative moods generally result from writing about negative experiences (Lonsdale & North, 2011). For example, researchers evaluated journals of women recently diagnosed with breast cancer and found that women's anxiety and depression levels could be predicted by the amount of negative emotions the women wrote about in their journals (Smith, Anderson-Hanley, Langrock, & Compas, 2005). Because of its effect on mood, writing can be used as an intentional strategy to improve mood. Gortner, Rude, and Pennebaker (2006) demonstrated that college students with depressive symptoms who wrote expressively for a period of time showed a decrease in their depressive symptoms. In a similar study, participants who had been primed to be in a negative mood and then asked to cognitively reframe an event by writing about it in a positive light experienced an increase in positive mood (Sleigh & McElroy, 2014).

One reason writing is effective in changing mood is that writing, like music, can alter arousal levels. For example, adults who were asked to write about an emotional situation by either accepting their emotional response or objectively reviewing their emotional response showed decreased heart rate compared to adults who were asked to evaluate their emotional response (Low, Stanton, & Bower, 2008). In a similar study, adults with post-traumatic stress were asked to write about the traumatic event they experienced; three months later, these participants had a lower cortisol level and a more positive mood compared to adults with post-traumatic stress who did not write about their traumatic event (Smyth, Hockemeyer, & Tulloch, 2008).

Drawing is a third strategy shown to modify mood. In particular, drawing can mimic writing in that drawing about negative emotions can increase positive mood. De Petrillo and Winner (2005) had college students view negative images and videos portraying tragedies; then, the students either drew a picture about their negative emotions or completed a word puzzle. Participants who drew a picture experienced an increase in positive mood compared to the participants who completed the puzzle. The researchers argued that drawing allowed the artists to purge their negative feelings. More recent research suggests that in both children and adults, drawing may be even more effective when it is used as a form of distraction rather than a way to purge emotions (Dalebroux, Goldstein, & Winner, 2008; Drake & Winner, 2013). For example, young adults were shown a negative video and then instructed to draw a picture that either expressed their emotional reaction to the movie or depicted happiness (Dalebroux et al., 2008). Participants who were asked to draw a happy image exhibited an increase in positive mood compared to participants who drew their negative feelings. Like writing and music, drawing may be used intentionally to improve mood. Many artists report they must create art in order to maintain positive emotional functioning.

A strategy that has not been as heavily researched is how exposure to nature impacts mood. Previous research suggests adding nature-themed decorations to healthcare environments can promote the health and psychological wellbeing of patients, as well as influence the process of healing (Dijkstra, Pieterse, & Pruyn, 2006). When studying the influence of wall art in a psychiatric ward, Ulrich (1986) found abstract artwork with no obvious meaning elicited negativity and aggressive behavior, such as tearing paintings off the wall and complaining to staff members, from non-violent, clinically anxious patients. In contrast, the same patients were calmed by paintings that depicted nature. In a similar study, patients recovering from heart surgery who viewed nature pictures (e.g., water and trees) experienced less anxiety than patients who viewed abstract pictures (Ulrich, Lundén, & Eltinge, 1993).

Like music listening and writing, exposure to nature also has physiological effects. For example,

Ulrich, Simons, and Miles (2003) examined blood donors who watched videotapes portraying nature scenes as opposed to donors who watched videotapes of an urban setting, daytime television, or no television at all. Blood donors who watched the nature scenes had a lower pulse rate. Ulrich (1984) also compared surgery patients with bedside windows who had a view of trees versus surgery patients with views of a brick wall. The surgery patients who had windows overlooking trees experienced shorter hospital stays and less pain medication.

Taken together, these findings suggest listening to music, writing, drawing, and being exposed to nature have the power to change mood; however, research comparing these strategies is limited. Drake, Coleman, and Winner (2011) conducted a study where participants were induced to be in a sad mood by watching five minutes of a negative documentary. After watching the documentary, participants were either instructed to write or draw for ten minutes, without being given a specific topic. Compared to the writing condition, individuals who drew for ten minutes showed a greater change from a negative to a positive mood. Thus, in this study, drawing was more effective than writing. Recently, Sleigh and McElroy (2014) primed participants to be in either a positive or negative mood. Participants then listened to music the participants considered to be opposite of the induced mood, or participants wrote about emotions opposite of the induced mood. Both music and writing demonstrated the power to change a positively primed mood to a negative one and a negatively primed mood to a positive one; however, music exerted a more powerful effect than writing, especially in women versus men.

Although previous research has either focused on one type of mood management alone or focused on the comparison of two types of mood management, our study compared four different types of mood management. The goal of the current study was to evaluate the relative effectiveness of these strategies. Of note is that previous research examined participants' responses to viewing nature, whereas our study involved participants listening to nature sounds. We chose to have participants listen to nature sounds for two reasons. First, this modification supplemented the

research focused exclusively on having participants view nature. Second, we wanted to create parallel conditions. Specifically, two of our experimental conditions involved pen and paper (drawing and writing), and the remaining two involved listening (to music or nature sounds).

Our hypotheses were as follows:
1. Based on the Sleigh and McElroy (2014) results and the frequency with which young adults use music as an intentional strategy to modify mood, we predicted music would be the most effective strategy for improving mood.
2. Based on the Drake et al. (2011) results, we predicted drawing would be more effective for mood change than writing.
3. We did not have a specific prediction for the influence of listening to nature sounds, as previous research had focused on viewing nature.

Method
Participants
Participants were 32 men and 107 women at a mid-sized Southeastern university. Professors were contacted and asked if they would allow their undergraduate classes to be used in the study. From the list of possible classes, ten were selected that had similar student compositions. These classrooms were randomly assigned to the music, writing, drawing, nature, or control condition. The instructor of the classrooms assigned to the music condition told the students to bring in their MP3 players and listening devices for a class exercise.

On the day of the experiment, researchers recruited participants in the classroom, and those students who voluntarily agreed participated in the experiment during class time. Participants received extra credit for participation; students who chose not to participate were offered an alternative opportunity for extra credit.

The mean age of the participants was 21.30 (SD = 3.94), with a range of 18 to 43 years. The sample consisted of: Caucasians (59%), African-Americans (28.1%), Hispanics/Latinos (2.2%), Asian/Pacific Islanders (2.2%), and Middle Easterners (2.2%). The remaining participants were made up of other ethnicities. The university's Institutional Review Board approved this study.

Procedure
There were four experimental conditions and one control condition (see Table 1). The study began with a three-minute written priming exercise to induce a bad mood, followed by a mood assessment as a manipulation check of the mood inducement. Next, participants were exposed to one of the five conditions for three minutes. Then, participants responded to the mood assessment again to analyze mood change. Last, participants responded to questions created by the researcher, as well as demographic questions.

Materials
Negative mood inducement. We used a written priming exercise designed to induce a bad mood in the participants and developed from previous studies (e.g., Garcia, Weaver, Moskowitz, & Darley, 2002; Sleigh & McElroy, 2014). In our study, participants were instructed to remember a

Table 1. *Five Experimental Conditions*

Experimental Condition	*n*	Initial Prime	Subsequent Exercise
Writing Condition	27	Write about a negative or tragic experience	Write about the positive aspects of the same event
Music Condition	29	Write about a negative or tragic experience	Listen to self-selected uplifting music
Drawing Condition	33	Write about a negative or tragic experience	Draw something happy
Nature Condition	27	Write about a negative or tragic experience	Listen to selected nature sounds
Control Condition	23	Write about a negative or tragic experience	Write about any experience from the past week
Total	139		

negative emotional event from their past and write about how it made them feel. This type of recall about personal events is considered to be a very effective mood induction procedure (Baker & Gutterfreund, 1993; Jallais & Gilet, 2010).

Mood assessment. The Positive and Negative Affect Scale (PANAS) is a commonly used 20-question mood assessment tool (Watson et al., 1988). This scale consists of 10 positive affect descriptions and 10 negative affect descriptions. Examples of positive descriptions include alert, excited, proud, and active, and examples of negative descriptions include upset, guilty, scared, and irritable. Participants responded on a 5-point Likert scale in regards to how much the certain affect description applied to them at that moment, where 1 represented "very slightly or not at all," and 5 represented "extremely." The published Cronbach's alpha for the Positive Affect Scale ranges from .86 to .91, and the published alpha for the Negative Affect Scale ranges from .84 to .87.

Experimental conditions. Participants were exposed to different materials depending on their assigned condition. Nature sounds, consisting of birds chirping and wind gently blowing, were taken from the following website (http://www.youtube.com/watch?v=OdIJ2x3nxzQ; Scrapper9000, 2012) and played via a stereo system in the testing room. The sound was adjusted for the size of the room such that all participants could hear the nature sounds. Another group engaged in a writing exercise designed to encourage participants to think about an event from the opposite emotional perspective from which they first viewed it; this exercise has been established in previous studies (Baker & Gutterfreund, 1993; Jallais

& Gilet, 2010; Sleigh & McElroy, 2014). In the drawing group, participants were instructed to draw or doodle in a way that made them feel happy. In the control condition, participants were instructed to write about any event from their past week. This exercise results in participants evenly distributing across negative, positive, and neutral stories, and thus has been established as an effective control condition (Sleigh & McElroy, 2014; Garcia et al., 2002).

Participant perceptions and demographics. Four questions, developed by the researchers, required participants to rate their responses on Likert-type scales. Participants rated the extent to which their mood had changed over the course of the survey. Participants also rated how much they enjoyed and were annoyed by the survey. Next, participants rated the degree to which they identified with the statements, "I am sensitive to criticism" and "I have high self-esteem." The participants were also asked to rank which type of mood manipulation they perceived to be more useful in a real life situation. Last, all the participants answered demographic questions also created by the researcher to assess age, gender, and ethnicity.

Results

We calculated a Positive Affect Score and a Negative Affect Score at Time 1 (following the priming exercise) and Time 2 (following the manipulation) for each participant. We also calculated a Positive Change Score by subtracting Positive Affect at Time 1 from Positive Affect at Time 2, and similarly, we calculated a Negative Change Score by subtracting Negative Affect at Time 1 from Nega-

Table 2. *Positive and Negative Affect Scores at Time 7 Immediately Following the Priming Exercise*

Condition	n	Time 1 Positive Affect Score	Time 1 Negative Affect Score
Drawing	33	27.09 (7.9)	18.15 (8.32)
Music	27	21.85 (5.76)	20.15 (6.37)
Nature	27	26.41 (8.51)	18.22 (6.26)
Writing	26	23.84 (7.9)	15.08 (4.91)
Control	23	23.87 (7.47)	19.43 (7.31)

*Note: Affect Scores are displayed as means. Standard Deviations appear in parentheses beside Means.
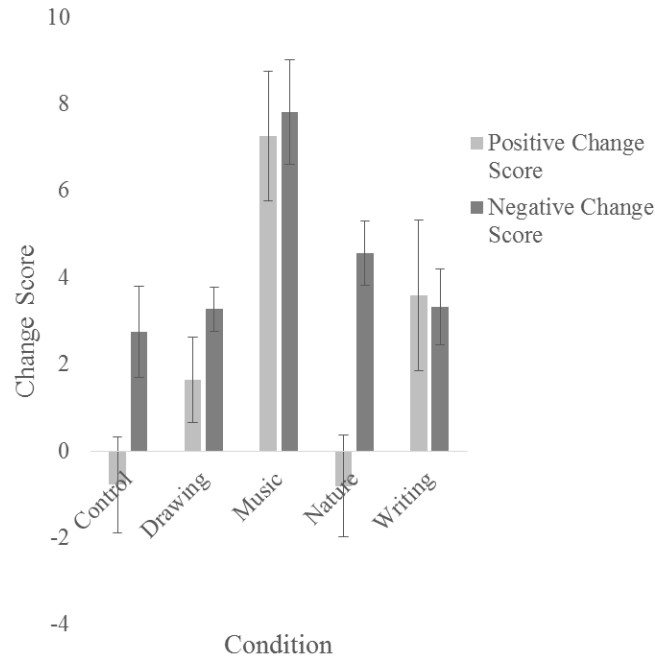
Figure 1.Positive and Negative Change Scores

tive Affect at Time 2. A higher score indicated a greater uplift in mood.

We compared the five conditions using a MANOVA; the nine dependent variables were Time 1 Positive Affect, Time 1 Negative Affect, Time 2 Positive Affect, Time 2 Negative Affect, Positive Change Score, Negative Change Score, perceived mood change, annoyance with the survey, and enjoyment of the survey. We used Fisher's LSD for post-hoc analyses of the five conditions.

The conditions did not significantly differ at Time 1 on their Positive Affect Score, $F(4, 131) = 2.27$, $p > .05$, and Negative Affect Score, $F(4, 131) = 2.11$, $p > .05$. In general, the scores indicated a negative mood and provided evidence the prime was similarly effective across conditions. The scores and n sizes can be found in Table 2.

The groups significantly differed on their Positive Change Score with a large effect size, $F(4, 131) = 6.38$, $p < .01$, $\eta^2 = .16$. The control condition exhibited the smallest change score and was significantly different than the writing ($p < .05$) and music ($p < .01$) conditions. The music condition exhibited the highest change score and was significantly different than all other conditions ($p < .01$), except for writing. The writing condition was significantly different from the nature ($p < .05$) and control (p

< .05) conditions, but was similar to the music and drawing conditions. The data for the change scores can be seen in Figure 1.

The groups also significantly differed on their Negative Change Score with a large effect size, $F(4, 130) = 5.42$, $p < .01$, $\eta^2 = .14$. The music condition showed significantly greater decrease in negative mood compared to all other conditions ($p </ = .01$). All other conditions exhibited similar changes in negative mood.

We also compared the conditions on how much participants believed their mood had changed over the course of the survey and found significant differences with a medium effect size, $F(4, 130) = 2.54$, $p < .05$, $\eta^2 = .07$. The means are depicted in Table 3. The music participants were the most likely to agree their mood had changed, with a mean response of 2.85 on a 4-point Likert scale, which represents a mood change of "somewhat." These participants believed their mood changed more than the drawing ($p < .01$), nature ($p < .05$), and writing ($p < .05$) conditions. The control condition and all other conditions did not differ from one another.

We also compared the conditions on how much participants reported the survey annoyed them, and found significant differences with a me-

Table 3. *Mean Mood Change over the Course of the Survey, Means for Level of Enjoyment and Level of Annoyance, Ranking of Usefulness in Changing Mood*

Condition	Mood Change	Level of Annoyance	Level of Enjoyment	Ranking Score
Drawing	2.13 (.87)	1.67 (.85)	2.57 (.94)	3.04 (1.01)
Music	2.85 (.91)*	1.48 (.58)	3.67 (.56)	1.52 (.87)
Nature	2.30 (.99)	1.93 (.78)	2.59 (.80)	2.43 (.92)
Writing	2.23 (1.18)	2.35 (.85)	1.73 (.72)	2.84 (1.02)
Control	2.57 (.90)	1.78 (.74)	2.00 (.44)	

*Note: p < .05
*Note: Lower ranking scores indicate the variable was ranked as more useful

dium effect size, $F(4, 131) = 4.80$, $p < .01$, $\eta^2 = .13$. The writing condition was significantly more annoyed by the survey compared to the drawing ($p < .01$), music ($p < .01$), nature ($p < .05$), and control ($p </= .01$) conditions. The music, nature, drawing, and control conditions did not significantly differ from one another. Similarly, we compared the conditions on how much participants reported they enjoyed the manipulation activity and found significant differences with a large effect size, $F(4, 127) = 27.40$, $p < .01$, $\eta^2 = .46$. Participants in the music condition enjoyed listening to music significantly more than any other conditions' activities ($p < .01$ in all cases). Participants in the nature condition enjoyed listening to nature sounds significantly more than participants who wrote ($p < .01$) or served as controls ($p < .01$). Similarly, participants in the drawing condition enjoyed the study significantly more than participants who wrote ($p < .01$) or served as controls ($p < .01$). The control and

writing participants enjoyed the manipulation the least and did not differ from one another. The means for level of enjoyment and annoyance are depicted in Table 3.

We examined the participants' rankings of the four provided strategies on their usefulness in changing mood. The results can be seen in Table 3. We also examined relations among variables using Pearson's correlations. The results can be seen in Table 4. Positive and Negative Change Scores were positively correlated $r(135) = .33$, $p < .01$, reflecting a moderate effect size. The more participants believed their mood had changed, the higher their Positive Change Scores $r(134) = .28$, $p < .01$, and the more they enjoyed the study, $r(131) = .29$, $p < .01$; both of these correlations reflect a small effect size. The less the survey annoyed participants, the higher their Positive Change Scores, $r(136) = -.30$, $p < .01$, reflecting a moderate effect size; however, feeling annoyed did not relate to Negative

Table 4. *Correlations among Selected Variables*

	Positive Change Score	Negative Change Score	Perceived Mood Change	Enjoyment of Survey	Annoyed by Survey
Positive Change Score	—	.32*	.42*	.31*	.30*
Negative Change Score	.33*	—	.28*	.27*	-.09
Perceived Mood Change	,42*	.28*	—	.29*	-.16
Enjoyment of Survey	.31*	.27*	.29*	—	-.49*
Annoyed by Survey	-.30*	-.09	-.16	-.49*	—

Change Scores.

Discussion

We hypothesized music would be the most effective strategy for improving mood. This hypothesis was supported in that music was more likely to decrease a negative mood than all other strategies. Although music was most effective in decreasing a negative mood, writing and music were equally effective in increasing a positive mood and were more effective than all other strategies. We can feel confident that mood did not simply change as a function of time for these two conditions because our control condition exhibited the lowest change scores (i.e., the smallest mood change). Previous research supports the effectiveness of these two strategies in improving mood and their common use by individuals to manage mood (Sleigh & McElroy, 2014; Ter Bogt et al., 2011).

Our findings are also consistent with the findings of Sleigh and McElroy (2014), where music was more effective than writing in influencing mood. One possible explanation for this observed influence of music is the control the participants had over the situation. The participants in the writing condition were instructed to write about the same event they had chosen earlier, whereas the music listening participants were allowed to select their own music. The ability to select one's own music is an important factor in creating a positive mood. For example, computer information system developers saw improvement in mood when they were able to select their own music in the work environment as opposed to not being able to select the music they wanted to hear (Lesiuk, 2010). After being asked to focus specifically on a negative event, participants may have especially appreciated the opportunity to be given a choice in the next step of the research process. In addition, the change from writing to listening may have been more pleasing to participants than being asked to engage in two writing exercises in a row.

We also hypothesized drawing would be more effective than writing in improving mood. This hypothesis was not supported. Drawing only emerged as a more effective strategy for increasing a positive mood when compared to listening to nature sounds or engaging in the control exercise.

This finding is not consistent with past research showing drawing as more effective than writing in changing a negative mood to a positive mood (Drake et al., 2011). However, participants in our study were instructed to write or draw about something happy, whereas in Drake et al.'s (2011) study, participants were not instructed to write about a specific topic. Also, when asked to rank these strategies on their usefulness in real life, participants in this study ranked drawing pictures as less useful in real life than writing.

We also asked participants about their perceived mood change over the course of the survey and we found the participants' self-awareness to be accurate. Participants who listened to music perceived their moods to have changed more than participants who wrote, drew, or listened to nature sounds. This was an accurate perception because the music participants' moods did change the most. Previous research has found individuals who listen to music tend to be aware of the change in mood while listening to music, and often listen to music for this purpose (Garrido & Schubert, 2011; Ladinig & Schellenberg, 2012; Saarikallio, 2011; Schäfer & Sedlmeier, 2010). Another correct perception was the greater the participants' increase in positive mood, the more they correctly reported their mood had changed and the more they enjoyed participating in the research.

Our participants also revealed inaccuracies regarding their mood change. Participants in the writing condition underestimated their mood change over the course of the survey. These participants showed an increase in positive mood similar to that of music listening participants; however, their self-assessment of mood change was lower than participants in the music condition. When participants in the writing condition were asked directly about the extent to which the research process annoyed them, they reported greater annoyance than other conditions. In addition, writing was ranked third out of four options in terms of its usefulness for changing mood. People may not fully realize the potential for writing as a mood management tool. This argument is supported by Sleigh and McElroy (2014) who found participants whose mood was improved through a writing exercise showed evidence of being unaware of the mood change.

Another inaccuracy of perceived mood change we found was with control participants. Control participants perceived their mood to have changed as much as did the music participants, when the control participants had the lowest mood change of all conditions. This finding could be the result of the participants possibly guessing that the researchers were trying to manipulate mood. This finding could also be the result of the control condition having a prompt that could be multidirectional. For example, when instructed to write about any event from the past week, a participant could have chosen to write about a happy event, resulting in their belief that their mood must have improved.

We asked participants to rank the usefulness of the four strategies in real-life. They ranked music as their top choice, reflecting some everyday usage of this effective strategy. Lonsdale and North (2011) found university students reported listening to music as more useful than many other mood improvement strategies. Similarly, Wells (1990) found most women and men reported using music frequently to change their moods. The combination of the actual mood change, perceived mood change, and perceived usefulness of music may explain why our participants in the music condition reported enjoying the research more than any of our other participants.

Participants reported being part of nature as the second most useful strategy. Perhaps listening to music and being part of nature were considered more useful strategies than drawing and writing because they are more passive activities. Young adults may prefer strategies that are easier and less effortful. Interestingly, our participants rated being part of nature as an effective strategy, despite the fact that participants who listened to nature sounds did not have a significant mood change. One possible explanation for this discrepancy is participants perceived being part of nature a different activity than listening to nature sounds. Another possibility is that we controlled the nature sounds to which the participants were exposed. Being part of nature may suggest a greater freedom and level of control than our participants in the nature condition experienced.

A limitation of this study is the priming exercise and the manipulation lacked consistency across conditions. All participants wrote in the first part of the study to induce a negative mood; however, in the second phase of the study, two groups wrote (control and writing conditions) whereas the remaining groups engaged in different activities. The change in activity may have contributed to the change in mood. In addition, the writing condition participants wrote about the same event twice; the control participants were allowed to write about a different event during the second phase of the study. The repetitious nature of the exercise for the writing condition could explain why the writing condition reported being more annoyed by the survey than the other conditions.

Future research could include further investigation of the nature condition since our findings of nature's influence on mood were not consistent with previous research showing the positive implications of nature on health and well-being (Dijkstra et al., 2006; Ulrich, 1984; Ulrich, 1986; Ulrich et al., 1993; Ulrich et al., 2003). For example, a future study could include participants actually being in nature (e.g., in a park) where they can see, smell, touch, and even taste nature rather than only listening to it. Some senses could be more heightened than others in different people (e.g., some people could respond differently to auditory sensory experiences than visual sensory experiences). Subsequent research could also investigate the extent of the manipulation's impact on participants (e.g., the duration of the resulting mood change). To study this, researchers could ask participants at a later time to report how long their resulting moods lasted after the survey, as well as the extent to which they felt the desire to participate in the manipulation again to improve their mood. This could increase the usefulness of the strategies in real life, as well as increase the ecological validity of the results.

In sum, this study suggests these mood management strategies are used by young adults in everyday life, but might have differential impacts. This study also supports the findings of previous research, showing that listening to music and writing are very powerful mood improving strategies.

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The Psychology of Bullies: Do Gender and Social Power Matter?

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Abstract—Bullying is a widespread and important social issue which lends the topic to a great deal of research (e.g., Cowie, 2000; Hunt, Peters, & Rapee, 2012). Certain personality traits might be influential in bullying behaviors, especially social dominance orientation (SDO; Pratto, Sidanius, Stallworth, & Malle, 1994), a personality trait related to the desire for social hierarchies and submission of one group to another. The current study investigated perceptions of bullying, including an experimental manipulation of bullying based on gender of the bully and the victim, and examined specific forms of bullying within gender and SDO constructs. A large sample (n = 337) of middle- and high-school students participated. The results showed that male students were more accepting of all four types of bullying compared to female students (all $ps < .001$). Also as expected, students higher in SDO were more accepting of bullying than students lower in SDO (all $ps < .001$). Surprisingly, further results showed when students read fictional bullying vignettes, the sex of the bully and victim did not seem to matter. Implications and additional results are discussed, along with future research possibilities.

Keywords: bullying, social dominance orientation, personality, gender

Popular culture has taken a closer look at the concept of bullying recently through a documentary called *Bully*. The documentary gives viewers video evidence of the suffering endured by five representative students over the 2009-2010 school year along with parent, administrator, and student authentic reactions (The Bully Project, "About the film," n.d.). The documentary moved many audience members and has blossomed into *The Bully Project*, a national campaign aimed at changing the culture of current American schools from bullying to empathy through guided discussions and a call to action (The Bully Project, "About the project," n.d.).

Bullying has been a major area of concern, and therefore the focus of much research, for a considerable duration of time (Hunt, Peters, & Rapee, 2012; Olweus, 1995; Tyson, 1930). The extent of this issue is magnified by research findings that state 87% of students hold a participant role in bullying. Bullies, assistants, reinforcers, outsiders, defenders, and victims are all affected by the bullying episodes they experience (Cowie, 2000).

The purpose of the current study was to investigate perceptions of bullying, including an experimental manipulation of bullying, and examined specific forms of bullying.

The effects of bullying can be severe. According to Hunt and colleagues (2012), anxiety, depression, low self-esteem, academic decline, and poor school attendance are all common symptoms experienced by a bullied child. Lee (1993) points to statistics from the United States Department of Justice and the National Association of School Psychologists which estimate 160,000 students refrain from attending school each day due to fear and feeling that the school is not a safe environment. Bullying has also been pointed to as a contributing factor in some suicides (Hunt et al., 2012). Approximately 71% of school shooters have been targets of bullies prior to their offense (Gabel, 2007). By the age of 24, 35-40% of male bullies are convicted of three or more officially registered crimes. The issue has become so prominent that several states have made bully policies or bully prevention plans mandatory for all schools.

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Throughout time, bullying has been divided into several subcategories including direct, indirect, physical, relational, cultural, verbal, and most recently, cyber-bullying (Athanasiades & Deliyanni-Kouimtzis, 2010; Gabel, 2007; Hunt et al., 2012; O'Brien, 2011; Osborne-Oliver, 2008). Although media reports on bullying typically generalize the topic, research has broken "bullying" down into these more specific forms in order to fully understand all components of the phenomenon. For example, direct or physical bullying is meant to harm the victim physically, whereas indirect bullying aims to manipulate the victims' relationships through threats, social humiliation, ostracism, and so on (Osborne-Oliver, 2008). Further, either direct or indirect bullying can take on a variety of forms including physical (destruction or harm to one's body/health [direct] or property [indirect]), relational (based on social relationships), cultural (based on one's religion, ethnicity, etc.), and most recently, cyber-bullying. Cyber-bullying is indirect or relational bullying occurring through the use of technology (Hunt et al., 2012), such as posting something negative on another user's Facebook profile or sending a profane e-mail.

Though many studies have been completed regarding bullying in general, fewer studies have investigated differences in perceptions of specific forms of bullying. For example, it is reasonable to believe that individuals may feel differently about physical confrontation or intimidation compared to social intimidation through such bullying behaviors as verbal insults. Thus, one purpose of the current study was to further understand how students' acceptance of bullying might depend on specific behaviors or perceived intentions. This leads to the following research questions:

> RQ1: *Will students report different levels of acceptance for the various forms of bullying?*

> RQ2: *Will levels of acceptance for various forms of bullying be related to reactions to fictional scenarios in which one character bullies another?*

Bullying and Personality

It is possible individual personality traits may affect both one's likelihood of experiencing bullying (as either a perpetrator or victim) and one's perception of bullying in general. One trait that might be particularly relevant is Social Dominance Orientation. Social Dominance Orientation (SDO) is defined by Pratto, Sidanius, Stallworth, and Malle (1994) as "one's degree of preference for inequality among social groups" (p. 741). The personality theory of SDO originated because of the widespread theme of group-based prejudice. For example, people high in SDO tend to endorse the belief that some social groups "deserve" more respect than others, and inequality is acceptable if based on justifiable reasons.

As most definitions of bullying include a component of power imbalance between bully and victim (Athanasiades & Deliyanni-Kouimtzis, 2010; Gabel, 2007), it could be inferred that SDO might be positively correlated with acceptance of bullying behaviors. People found to be high in SDO accept hierarchy-enhancing legitimizing myths which promote inequality, whereas those low in SDO tend to accept hierarchy-attenuating legitimizing myths (Pratto et al., 1994). Physical strength, social popularity, holding majority or privileged status in a group, and having a sought-after skill are all possible sources of perceived power bullies use over their victims (O'Brien, 2011). Those perceived power sources could also be reinforcing hierarchy-enhancing legitimizing myths. Parkins, Fishbein, and Ritchey (2006) studied SDO in relation to workplace bullying and discrimination and found participants high in SDO were more likely to perpetrate the negative behaviors of interest. More specifically, they found participants high in SDO were more likely to treat others as members of a category rather than as individuals. Perhaps that mindset also allows school bullies to rationalize their actions against their victims. It could also apply to people who simply witness bullying without intervening. This possibility leads to the following hypothesis:

> H1: *There will be positive correlations among (a) SDO scores, (b) acceptance of bullying in general, and (c) acceptance of bullying in fictional scenarios.*

Bullying and Gender

There is an array of research focusing on

bullying and gender. O'Brien (2011) found boys were more likely to be bullies, whereas girls were more likely to be victims. Her results, along with other studies she refers to, point to a gender difference in bullying types. Both genders experience indirect aggression, but boys are more apt to experience and display direct physical aggression, while girls utilize indirect relational and verbal bullying (Athanasiades & Deliyanni-Kouimtzis, 2010; O'Brien, 2011). Due to this difference found in previous research, it is reasonable to expect boys and girls may perceive direct versus indirect forms of bullying differently; exploring this possibility was one goal of the current study.

Athanasiades and Deliyanni-Kouimtzis (2010) discovered female students were firmly against bullying; however, the female students were careful to eliminate behaviors such as exclusion and making fun of others as part of their definition of bullying, thus allowing for these behaviors without using the negative label. At times the female students even described the eliminated types of bullying as the victims' fault. This type of rationalization for bullying behaviors could point to high SDO in those participants, and it certainly demonstrates the need for further understanding of gender differences in perceptions of bullying.

According to Cowie (2000), school-implemented coping strategies against bullying often include a mentor system. However, a deficit of male students as peer supporters exists. Schools describe recruiting and maintaining male peer supporters as much more challenging than recruiting and maintaining female peer supporters. Cowie speculated that boys are likely to refrain from showing care, such as taking on the role of peer supporter, unless it is clear their masculinity will not be questioned by doing so. It could also be speculated that the boys in this study were less concerned about the bullying issue because of the possibility of high SDO, which translated into support for dominance asserting behaviors such as bullying.

Given extant research on the crossroads of gender and bullying, the current study proposed the following additional hypotheses:

> H2: *Male participants will score higher in SDO than female participants (a replication of previous research findings; Pratto et al., 1994).*

> H3: *Male participants will be more accepting of all types of bullying behaviors than will female participants.*

> H4: *Male participants will be more accepting of physical bullying behaviors than female participants, and this difference will be greater than the gender difference in acceptance of other forms of bullying.*

> H5: *Within-gender effects will occur, such that female participants will be more accepting of relational bullying behaviors than of physical bullying behaviors.*

> H6: *After reading fictional scenarios depicting bullying, acceptance of bullying in the vignettes will be highest (most acceptable) for males bullying males, then females bullying females, then females bullying males, then males bullying females.*

Method

Participants

This study included 337 students (162 males, 174 females, 1 unknown) from a central Iowa middle and high school who were predominantly White (98.41%). The age range was between 11 and 19 years (M = 14.63, SD = 1.99). Specifically, the age breakdown was as follows: age 11 (n = 6), age 12 (n = 53), age 13 (n = 62), age 14 (n = 46), age 15 (n = 49), age 16 (n = 45), age 17 (n = 40), age 18 (n = 34), age 19 (n = 1), and one participant who did not report his age.

Predictor Variables

Social dominance orientation. To measure SDO, participants completed the scale created by Pratto et al. (1994). Participants responded to 16 items on a 7-point Likert scale (1 = *very negative*, 7 = *very positive*); items were summed to form a mean composite score for each person. Possible scores could range from 16 to 112, with higher numbers indicating higher belief in social dominance. Items on the scale included, "Some groups of people are simply inferior to other groups,"

and, "No one group should dominate in society." Items 9-16 were reverse scored before being included in the average. The mean of this sample was 46.50 (SD = 17.62). Internal consistency for this scale was good, α = .89.

General perceptions of bullying. To assess each participant's general perceptions of bullying, they completed a modified version of the Personal Experiences Checklist (PECK) scale (Hunt et al., 2012). The scale asked participants to consider several specific bullying behaviors (e.g., hitting, sending nasty e-mails) exemplifying four specific types of bullying: physical, relational-verbal, cyber, and culturally-based bullying. Participants rated each specific item on a 5-point Likert scale (where 1 = *never acceptable* and 5 = *always acceptable*); items were averaged to form a mean composite score for each person. Possible scores ranged from one to five, with higher numbers indicating more acceptance of that form of bullying. Items on the scale included, "Kids threaten another kid over the phone" and, "Kids kick another kid." The overall mean of this sample was 1.70 (SD = 0.96). Internal consistency for this overall scale was very good, α = .97, as were all subscales for specific bullying types (all αs > .90).

Independent Variable: Bullying Paradigms

To test perceptions of specific bullying scenarios, participants were given one of four bullying vignettes, all of which were written by the authors (please see Appendix A). The vignettes included all four forms of bullying tested by the PECK scale and were identical except the experimentally manipulated sex of the perpetrator and victim. Participants received one packet at random, which created a between-subjects design. O'Brien (2011) considers vignettes ideal for studying this topic because they are "non-threatening" in that they are not directly concerning the participants' personal experiences (p. 269).

Dependent Variables

To assess perceptions of the fictional bullying scenarios, participants responded to several items regarding their reactions to the vignettes (see Appendix B for all items, which were written by the authors). The responses were split into three sub-scales which measured perceptions of

the bully, perceived effects on the victim, and emotional reactions of the participant. Participants were also asked to write the names of the bullying character and the victim character, to ensure they paid attention to the sex of each character (i.e., a manipulation check). Ten participants reported incorrect information and thus were discarded from any relevant analyses.

Perceptions of the bully. The first sub-scale contained three questions which addressed how acceptable the fictional bully's behaviors were. Items included, "How acceptable is the bully's behavior?," "Should the bully be punished?," and "If the bully is punished, how severe should that punishment be?" Participants were asked to circle a number on a 7-point Likert scale, with different anchors for each item (see Appendix B). The responses to each of the three items were averaged to determine the mean composite score. Thus, the possible range was one to seven, with higher numbers indicating a more negative view of the fictional bully. The mean of this sample was 5.86 (SD = 1.04). Internal consistency of this scale was acceptable, α = .73.

Perceived effects on the victim. The second sub-scale contained seven questions which addressed the perceived effect of the bully's actions on the victim. Items included, "How severely will the victim be physically harmed?," "How severely will the victim be emotionally harmed?," "How severely will the victim be depressed?," "How severely will the victim's self-esteem be decreased?," "How severely will the victim be psychologically harmed?," "How difficult will it be for the victim to concentrate in school?," and "How seriously will the victim consider suicide?" Participants were asked to circle a number on a 7-point Likert scale (see Appendix B for anchors on each item). The responses to each of the seven items were averaged to determine a mean composite score. Thus, the possible range of scores was one to seven, with higher numbers indicating greater perceived negative effects on the victim. The mean of the sample was 4.64 (SD = 1.21). Internal consistency for the scale was good, α = .86.

Emotional reactions. Finally, participants completed five "feeling thermometer" scales. These items included one feeling at the end of a continuum (e.g., sympathetic; see Appendix B for all items)

and the word "neutral" at the other end; participants wrote an "X" on the continuum to indicate their current level of each emotion. Emotions included "angry," "amused," "frustrated," "sad," and "sympathetic." These items were scored by measuring the distance from the left end of the continuum to the "X" (in millimeters). The "amused" scale was reverse coded by measuring the distance from the left end of the continuum to the "X" and subtracting that distance in millimeters from 87 mm (which is the total length of each continuum). The responses to the five items were averaged to determine a mean composite score. Thus, the possible range of scores was 0 to 87, with higher numbers indicating greater negative or empathetic emotional reaction of the participant. The mean of the sample was 65.65 (SD = 25.87). Internal consistency for the scale was good, α = .81.

Procedure

A school district was approached by the researcher and informed of the nature of this study. Upon agreement of the institution to consider middle and high school participation, information thoroughly explaining the process of the study and all tasks to be completed by the students was sent to the parents/guardians of each student to be read. If any parents/guardians objected to their student's participation, the student was allowed to complete a different activity during the study session. No parents/guardians withdrew their children. Teachers at the school were trained in experimental procedures and conducted the study during the regular school period of "advisory" (similar to a home room). Any students who elected not to participate were allowed to work quietly on other tasks of their choice during the study.

Teachers read scripted instructions, then randomly distributed packets. Instructions included the confidential nature of participation, the purpose of the study, and the participants' right to discontinue participation in the study at any time for any reason. The order of materials in the packet was as follows: written explanation of the participants' freedom to discontinue participation at any time throughout the study, demographics, SDO scale, PECK scale, vignettes, and items regarding reactions to the vignettes (all dependent varia-

bles). Participants were able to complete the packets at their own pace, and when finished were asked to sit quietly until everyone else was done. After all participants were done and packets were turned in, teachers read a scripted debriefing sheet and asked if there were questions. Students were thanked once more for their participation and cooperation. The study was approved by the hosting university's Institutional Review Board for ethics.

Results

Research Question 1

The first research question asked: Will students report different levels of acceptance for the various forms of bullying? An ANOVA was conducted and the results confirmed students did report different levels of acceptance for various forms of bullying; $F(3, 975)$ = 34.20 for the overall model, $p < .001$. Physical bullying (M = 1.82, $SD >$ 1.10) was found to be most acceptable followed by relational/verbal (M = 1.71, SD = 1.00), cyber-bullying (M = 1.64, SD = 0.94), and cultural bullying (M = 1.52, SD = 0.99). Despite seemingly small differences in acceptability, the large sample size showed each type of bullying was statistically different from each other type of bullying. Contrasts showed cultural bullying was significantly less acceptable than cyber-bullying; $F(1, 325)$ = 16.33, $p < .001$. Cyber-bullying was significantly less acceptable than relational/verbal bullying; $F(1, 327)$ = 8.97, p = .003. Finally, relational/verbal bullying was significantly less acceptable than physical bullying; $F(1, 327)$ = 12.83, $p < .001$. In the discussion, we address statistical versus practical significance.

Research Question 2

The second research question asked: Will levels of acceptance for various forms of bullying be related to reactions to fictional scenarios in which one character bullies another? Through correlation analyses, it was determined acceptance for each form of bullying was significantly negatively correlated with higher negative perceptions of the bully, more negative perceived effects on the victim, and more negative emotional reaction (all $ps < .001$; see Table 1 for all correlation values). In other words, for each form of bul-

Table 1. *Correlations between Acceptance of Bullying Types and Perceptions of the Bully, Perceived Effects on the Victim, and Emotional Reactions*

	M (SD)	Perceptions of Bully	Perceived Effects on Victim	Emotional Reactions
Relational/Verbal	1.71 (1.00)	-.49*	-.26*	-.30*
Cyber	1.64 (.94)	-.50*	-.27*	-.28*
Cultural	1.52 (.99)	-.48*	-.20*	-.19*
Physical	1.82 (1.10)	-.47*	-.30*	-.27*

*Note. n*s range from 74^2 to 767 due to occasional missing data.
* *p* < .001.

lying, the less acceptable bullying was, the more negative effects were perceived by the participants.

Hypothesis 1

The first hypothesis stated there would be correlations among (a) SDO scores, (b) acceptance of bullying in general, and (c) acceptance of bullying in fictional scenarios. As expected, higher SDO scores were positively correlated with acceptance of all types of bullying. Specifically, SDO was significantly positively correlated with relational/verbal bullying [r(324) = .44, p < .001], cyber-bullying [r(324) = .42, p < .001], cultural bullying [r(322) = .39, p < .001], and physical bullying [r(324) = .45, p < .001]. In short, individuals who believe in social hierarchies were more accepting of all forms of bullying.

Also as expected, SDO was significantly negatively correlated with perceptions of the fictional vignette bully [r(322) = -.40, p < .001], perceived effects on the victim [r(321) = -.27, p < .001], and emotional reactions of the participant [r(309) = -.28, p < .001]. In other words, individuals with higher SDO scores had less negative perceptions of the bully, perceived less of an effect on the victim, and reported feeling less negative emotion after reading the bullying scenarios. In summary, Hypothesis 1 was supported both for general acceptance of bullying and for acceptance of bullying in an experimentally created scenario.

Hypothesis 2

The second hypothesis stated that male participants would score higher in SDO than female

participants (replicating previous research; Pratto et al., 1994). A t-test supported this hypothesis, t(326) = 6.52, p < .001. As expected, SDO scores were higher in males (M = 52.59, SD = 17.34) than females (M = 40.64, SD = 15.84).

Hypotheses 3 and 4

In order to test Hypothesis 3, which stated male participants would be more accepting of all types of bullying behaviors than will female participants, a series of t-tests was conducted (one for each form of bullying). The t-test for relational/verbal bullying [t(325) = 5.69, p < .001] revealed more acceptance of this type of bullying in males (M = 2.01, SD = 1.16) than females are (M = 1.42, SD = 0.67). For cyber-bullying, the t-test [t(325) = 5.46, p < .001] revealed this type of bullying was more accepted by males (M = 1.91, SD = 1.12) than females (M = 1.37, SD = 0.62). A t-test again revealed that for cultural bullying [t(323) = 5.48, p < .001], acceptance was higher in males (M = 1.80, SD = 1.16) than females (M = 1.23, SD = 0.66). Finally, the t-test conducted for physical bullying [t(325) = 7.69, p < .001] revealed that again, acceptance was higher in males (M = 2.26, SD = 1.32) than in females (M = 1.40, SD = 0.60). In conclusion, all parts of Hypothesis 3 were supported; males found all four types of bullying identified in this study as more acceptable than females did.

Hypothesis 4 stated that in particular, male participants would be more accepting of physical bullying behaviors than female participants, and this difference will be greater than the gender difference in acceptance of other forms of bullying. By comparing the relative size of each t-value stat-

ed in the paragraph above, it is clear the t-test for physical bullying revealed a larger sex difference ($t = 7.69$) than existed for the other forms of bullying (the next largest t-value was $t = 5.69$). Hypothesis 4 was supported.

Hypothesis 5

The fifth hypothesis stated within-gender effects would occur, such that female participants would be more accepting of relational bullying behaviors than of physical bullying behaviors. Female participants had a mean acceptance of relational/verbal bullying of 1.42 ($SD = 0.67$) and a mean acceptance of physical bullying of 1.40 ($SD = 0.60$). There was not a significant difference between female acceptance of the two bullying forms [$F(1, 167) = .24$, $p = .62$]. Therefore, Hypothesis 5 was not supported.

Hypothesis 6

Hypothesis 6 stated after reading fictional scenarios depicting bullying, acceptance of bullying in the vignettes would be highest (most acceptable) for males bullying males followed by: females bullying females, females bullying males, and finally males bullying females. However, an ANOVA revealed no significant difference in perceptions of how bad the bully was based on the sex of the bully and victim in the vignette [$F(3, 324) = 1.29$, $p = .28$]. In addition, no significant differences were found in perceived effects on the victim based on sex of the characters [$F(3, 323) = .50$, $p = .69$] or emotional reactions of the participant [$F(3, 309) = 1.23$, $p = .30$]. See Table 2 for all relevant means and standard deviations. In short, Hypothesis 6 was not supported.

Discussion

The purpose of the current study was to replicate previous findings, as well as to test additional hypotheses concerning perceptions of bullying based on gender and SDO constructs.
Results for the first research question revealed middle- and high-school students in this study perceived various types of bullying differently, in terms of their acceptability. This finding aligns with previous research (e.g., Hunt et al., 2012). Perhaps the significant differences in acceptance of types of bullying point to insight on behalf of the students; they found physical bullying to be the most acceptable, whereas cyber and cultural bullying were the least acceptable. It seems many education programs are focusing on bringing awareness to cultural bullying and the newer technology based cyber-bullying. This could be de-emphasizing the negativity surrounding physical bullying, which could explain some of the variation in acceptance of different forms of bullying.

However, it is important to note while the results did reach statistical significance, it could be questioned whether the means show practical significance. The "most acceptable" mean, for

Table 2. *Means and Standard Deviations for Hypothesis 2*

Perceptions of Bully		Male Bully	Female Bully
	Male Victim	5.83 (1.13)	5.98 (.82)
	Female Victim	5.95 (.99)	5.69 (1.17)
Perceived Effects on Victim		Male Bully	Female Bully
	Male Victim	4.57 (1.22)	4.57 (1.10)
	Female Victim	4.76 (1.22)	4.67 (1.30)
Emotional Reactions		Male Bully	Female Bully
	Male Victim	65.94 (27.93)	70.00 (23.73)
	Female Victim	62.85 (25.65)	63.49 (25.68)

Note. The first number in each cell is the mean; the number in parentheses is the standard deviation.

physical bullying, was 1.82 (on a scale from one to five), and the "least acceptable" mean (for cultural bullying) was 1.52. Certainly, both of these means are very low and are relatively close to each other on a five-point scale. The good news is all four forms of bullying were generally perceived as unacceptable, with none of the four bullying types reaching the middle of the possible range.

For the second research question, it is interesting that for every different form of bullying, there was a significant negative correlation between acceptance of the form and perceptions of the bully, perceived effects on the victim, and emotional reaction to the bullying scenario. In short, less acceptance of bullying means students are perceiving bullying situations in a negative way, believing the bully is a bad person, believing the victim will suffer, and reporting negative empathetic emotions simply from reading about the scenario. Perhaps this reveals students are making connections between bullying behaviors and the individuals involved in bullying situations. Recognition of those involved in bullying may result in increased empathy, which might be a good future avenue for bullying interventions in schools, as previously suggested by Cowie (2000).

Both Hypotheses 1 and 2 seemed to show SDO is associated with changed perceptions of bullies, perceived effects on the victim, and emotional responses of the participant. Higher SDO scores, as predicted, were associated with more acceptance of bullying both in general and in the fictional scenarios. This suggests that further understanding of SDO could lead to insights for the creation of successful bullying-prevention programs through fostering equality or minimizing SDO. Programs focusing on equality and the minimization of SDO could indirectly affect not only bullying, but other negative occurrences in schools such as hate crimes, racial slurs, and sexual misconduct. These ideas were first explored in Pratto et al. (1994). Since Pratto and colleagues found males scored higher than females on SDO, schools might want to consider constructing and implementing this type of programing based on gender. Further research would need to be conducted, however, to ensure this separation of sexes does not strengthen SDO thinking toward the opposite sex.

For Hypothesis 3, male students were more

accepting of every type of bullying individually and of bullying as a whole. Again, these findings suggest male-targeted school programs could be useful and possibly more effective than attempting to implement an anti-bullying program for all students as a homogenous group. As revealed in Hypothesis 4, the greater acceptance of physical bullying by male participants could be a result of cultural expectations for males to be aggressive and physically tough (Hunt et al., 2012). Perhaps these cultural norms have created an environment in which physicality is more salient and acceptable in males. In contrast, Hypothesis 5 expected females would be more accepting of relational/verbal bullying than of physical bullying (Athanasiades & Deliyanni-Kouimtzis, 2010; O'Brien, 2011), but this was not the case. Perhaps females generalize more when it comes to different forms of bullying, compared to males; this is certainly an interesting avenue for future research.

Finally, we expected the sex of the characters in the fictional vignettes might have an impact on participants' views. It was hypothesized that bullying might be most acceptable when a male bullies another male, due to the "boys will be boys" nature of current society. It was also hypothesized that males bullying females would be seen as least acceptable, due to stereotypes that females are weaker and lessons taught by schools and parents that boys/men should never hit girls/women (a message supported by the authors). However, participants in the between-subjects experimental design did not differentiate their reactions based on character sex. It is possible the expected differences would have been found in a within-subjects experimental design; this could be tested in future research. However, it is also possible the participants simply focused on the actual bullying behaviors described in the scenarios, and did not focus on character sex. Future research could also make character sex more salient (e.g., bullying behaviors could relate to gendered or sexual behaviors), to see if character sex really is (or is not) a relevant factor in perceptions of bullying. Finally, additional forms of bullying could be explored, such as "sexual bullying," and whether the construct fits into the pre-existing categorical structure already in place for bullying types, or whether these new forms would take on a different factorial structure.

Limitations and Future Research

There were several limitations to this study. Even though the sample was quite large, all participants were students of a single, rural, predominantly White school. To better generalize these results, a more diverse sample must be collected. This could include geographical regions, ages of students, urban versus rural populations, and more. Specifically, none of the hypotheses explored whether students' perceptions changed with age; it is reasonable to believe beliefs about bullying may be modified with maturity (Hunt et al., 2012). In addition, measures of personal experience either as the victim or perpetrator of bullying could also be included, to see if personal experience influences one's perceptions of bullying. For example, it is reasonable to believe personal experiences of being a victim might increase empathy for other victims.

In addition, how bullying is handled in school settings is certainly affected by how teachers and administrators react and their opinions toward the issue. Again, the fact that all participants came from a single school means that their messages about bullying are limited. This study also did not test for the perceptions of bullying from any of the teachers or administrators in this school. The authors of this study are currently analyzing data from a separate sample of teachers and administrators from across the state, in order to compare teachers' perceptions to the student perceptions found here. If teachers and administrators have significantly different views of bullying than students, intervention programs might wish to address this psychological divide.

Conclusion

Bullying will remain an important topic of research until effective prevention and solution strategies are created. In order to develop these strategies, a better understanding of all aspects of the problem is necessary (Hunt et al., 2012). These data reveal males perceive bullying differently than females, and students high in SDO find bullying more acceptable and less harmful on the victim. Thus, anti-bullying programs could be more effective if they target females and males in different ways. In addition, personality components, specifi-

cally social dominance orientation, could also be addressed; perhaps students high in SDO could engage in activities designed to help them empathize with victims or increase how much they value equality across social groups. Finally, it is possible that bullying interventions should acknowledge and target different forms of bullying in different ways. More research should be conducted in order to utilize this information in creating an appropriate and effective way to end the plague that is bullying.

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Author Note

Appendix A

Bullying Vignettes
Male to Male

Matthew and Jeremy attend the same school. One afternoon, Matthew walks down the hallway and sees Jeremy walking toward him. Matthew pushes Jeremy and knocks his books out of his hands. He points and laughs while Jeremy rushes to collect his things. A few other students join in Matthew's laughter. The next day, Matthew calls Jeremy a mean name. The students near enough to hear him gasp and whisper at Matthew's crude language. Matthew continues on his way with a smug grin. After school was dismissed, Matthew makes a Facebook status about what a "pathetic" person Jeremy is. His status receives several likes and pops up on Jeremy's news feed.

Male to Female

Matthew and Mary attend the same school. One afternoon, Matthew walks down the hallway and sees Mary walking toward him. Matthew pushes Mary and knocks her books out of her hands. He points and laughs while Mary rushes to collect her things. A few other students join in Matthew's laughter. The next day, Matthew calls Mary a mean name. The students near enough to hear him gasp and whisper at Matthew's crude language. Matthew continues on his way with a smug grin. After school was dismissed, Matthew makes a Facebook status about what a "pathetic" person Mary is. His status receives several likes and pops up on Mary's news feed.

Female to Female

Ashley and Mary attend the same school. One afternoon, Ashley walks down the hallway and sees Mary walking toward her. Ashley pushes Mary and knocks her books out of her hands. She points and laughs while Mary rushes to collect her things. A few other students join in Ashley's laughter. The next day, Ashley calls Mary a mean name. The students near enough to hear her gasp and whisper at Ashley's crude language. Ashley continues on her way with a smug grin. After school was dismissed, Ashley makes a Facebook status about what a "pathetic" person Mary is. Her status receives several likes and pops up on Mary's news feed.

Female to Male

Ashley and Mark attend the same school. One afternoon, Ashley walks down the hallway and sees Mark walking toward her. Ashley pushes Mark and knocks his books out of his hands. She points and laughs while Mark rushes to collect his things. A few other students join in Ashley's laughter. The next day, Ashley calls Mark a mean name. The students near enough to hear her gasp and whisper at Ashley's crude language. Ashley continues on her way with a smug grin. After school was dismissed, Ashley makes a Facebook status about what a "pathetic" person Mark is. Her status receives several likes and pops up on Mark's news feed.

Appendix B
Dependent Variables

Perceptions of the Bully

1. How acceptable is the bully's behavior? Please circle a number below:

1—————--2————-——-3—————-—-4—————-5————-—-6——————7
Not at all acceptable   Neutral   Very acceptable

2. Should the bully be punished? Please circle a number below:

1—————--2————-——-3—————-—-4—————-5————-—-6——————7
Not at all acceptable   Neutral   Very acceptable

3. If the bully is punished, how severe should that punishment be? Please circle a number below:

1—————--2————-——-3—————-—-4—————-5————-—-6——————7
Not at all acceptable   Neutral   Very acceptable

Perceived Effects on the Victim

4. How severely will the victim be physically harmed? Please circle a number below:

1—————--2————-——-3—————-—-4—————-5————-—-6——————7
Not Sever   Neutral   Very Severe

5. How severely will the victim be emotionally harmed? Please circle a number below:

1—————--2————-——-3—————-—-4—————-5————-—-6——————7
Not Sever   Neutral   Very Severe

6. How severely will the victim be depressed? Please circle a number below:

1—————--2————-——-3—————-—-4—————-5————-—-6——————7
Not Sever   Neutral   Very Severe

7. How severely will the victim's self-esteem be decreased? Please circle a number below:

1—————--2————-——-3—————-—-4—————-5————-—-6——————7
Not Sever   Neutral   Very Severe

8. How severely will the victim be psychologically harmed? Please circle a number below:

1—————--2————-——-3—————-—-4—————-5————-—-6——————7
Not Sever   Neutral   Very Severe

9. How difficult will it be for the victim to concentrate in school? Please circle a number below:

1—————--2————-——-3—————-—-4—————-5————-—-6——————7
Not Difficult   Neutral   Very Diffcult

10. How seriously will the victim consider suicide? Please circle a number below:

1—————--2————-——-3—————-—-4—————-5————-—-6——————7
Not Seriously   Neutral   Very Seriously

Emotional Reactions

Please indicate your emotions as you think about this story using the lines below. For each line, mark an "X" indicating your feelings. Below is an example which shows someone feels much more joyful than neutral.

Example: Neutral 0---X--------0 Joyful

Neutral 0--0 Angry
Neutral 0--0 Amused
Neutral 0--0 Frustrated
Neutral 0--0 Sad
Neutral 0--0 Sympathetic

Odd Couplings: Effect of Dyadic Groups on Creativity

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Abstract—This research study examined the interaction between dyads and creativity. Specifically, does intimate knowledge of someone enhance or detract from one's ability to be creative in a divergent thinking task? We considered an intimate relationship to be one characterized by a feeling of closeness and connectedness, typified by the sharing of personal information common amongst romantic partners and/or close friends. Recruited participants brought in a romantic partner or a friend they had known for at least six months. The couples were tested twice: once with their partner and once with an impromptu partner on the Thinking Creatively with Sounds and Words (TCSW). To measure cooperation and creative climate, after each TCSW administration, every individual was given the participative safety subscale of the Team Climate Inventory. Results indicated the intimate partners performed significantly better than the impromptu pairs on the TCSW. Participative safety differences for the two groups were not statistically significant; however, they differed practically, and this suggests its importance in dyadic creativity. Further, participative safety scores also positively correlated with TCSW scores, suggesting its role as a significant predictor of dyadic creativity. One limitation of this study is the small sample size, and thus more research to determine the relevance of intimate partnerships in creative production is warranted.

Keywords: creativity, dyads, intimate relationships

Koestler (1964) postulated that the creative process is a result of bisociation. In other words, how two seemingly diverse elements (generally, these could be ideas or concepts) can spark a creative genesis, leading to the synthesis of an original product or idea (matrix of meaning). This theory works at the individual level, but if we substitute people for objects and re-examine this theory in a dyadic context, can we replicate these results? The bringing together of two diverse individuals with all of their individual idiosyncrasies could provide a challenge to this model. Beyond the dynamics that comes with using human participants, one must consider whether the individuals know one another. Derived from a classic quote by German poet Novalis (1772-1801) and used by creativity theorists today to describe the creative process, if creativity is truly a process of making the familiar strange and the strange familiar, then what role does familiarity play in assisting or hindering this

process (Chandler, 2014)? Can intimacy impact this dyadic relationship and subsequent creativity? This study examined how group dynamics influence creativity to answer the question whether creativity can be enhanced in a dyadic setting where the participants know each other intimately. Beyond this aspect, this study also sought to determine the role working in a group plays in creative performance.

Addressing the latter question first, it has been demonstrated that motivational factors and group dynamics (e.g., motivation towards the task, formation of the group or the group's procedures, threatening versus safe environment to share ideas) contribute to a team's creative performance. Creative production can be hindered in groups when task motivation drops or team conflicts arise (Schilpzand, Herold, & Shalley, 2011). In addition, Nijstad and Stroebe (2006) discovered idea production was hindered in a group based on the as-

*Robert J. Woodward served as Faculty Sponsor.

pects of a group's formation and the formalization of the procedures within the group itself. Anderson and West (1998) proposed a framework to assess team climate consisting of four components: vision, participative safety, task orientation, and support for innovation. Participative safety measures how threatening of an environment the participants perceive it to be. An atmosphere of trust supports communication of new ideas, and negative evaluation hinders creativity. Troyer and Youngreen (2009) found that when a member of a group is given the task of evaluating the other members' ideas, the group did not produce as many ideas. Taken together, it seems to indicate motivational and group dynamics are a factor in creative production. In addition, individuals who are confident and capable of expressing themselves in a familiar group might have an advantage over a grouping that was unfamiliar with each other. This advantage may be especially evident in an idea generation or divergent thinking task.

With idea generation in groups in mind, one of the first pioneers who investigated this phenomenon was Osborn (1957), who developed a technique called brainstorming to help increase the sharing of ideas in groups. He laid out four rules to govern brainstorming: a) criticism is not allowed, b) freewheeling is encouraged (building off other's ideas), c) quantity is the goal, and d) combination and improvement is key (Jablin, 1981). He reasoned that if the group was able to hold evaluation of generated ideas until later, and spring board off of each other's ideas, the group would be able to generate high quantity and quality ideas. Empirical studies found positive results to support this notion (Meadow & Parnes, 1959; Parnes & Meadow, 1959; Weisskopf-Joelson & Eliseo, 1961).

Despite Osborn's intentions and contrary to his hypothesis, more recent research has shown interaction in groups produce lower levels of productivity compared to individual brainstorming in both quantity and quality of ideas (Paulus & Dzindolet, 1993; Stroebe & Diehl, 1994). It seems reasonable that ideas generated by one person could inspire, or spark ideas in another group member; however, there are other factors that could stifle this, such as conforming to other's ideas (Nijstad, 2015). Group members could also fear

the negative evaluation of their ideas and not share them with the group. The major barrier for groups to produce creative ideas is production blocking, as having to take turns sharing ideas has the potential to disrupt idea generation and articulation. Other ideas can help in the activation of knowledge and can lead to higher performance in situations where the group does not have to take turns sharing ideas, such as writing down their notes or using computer/online approaches.

But with specific regard to the sharing of information, the communication process as it relates to creative production can depend on whom you are communicating with. But how do group factors such as diversity of membership or group size impact creativity? These are important components that need to be considered separately. Diversity of group members has been proposed as one of the driving factors in creativity, known as the value in diversity hypothesis (McLeod, Lobel, & Cox, 1996). Diversity could be in terms of demographic differences or in psychological attributes. Diversity may relate to creativity in that diverse group members bring different resources (knowledge or skills) to the group and may also see things from different perspectives (Nijstad, 2015). Although having multiple perspectives or the ability to reframe a problem from one's unique point of view can enhance creativity (Hülsheger, Anderson, & Salgado, 2009), are those potential benefits offset by working with an unfamiliar group of people? Several studies have also shown diversity in groups can sabotage creativity due to various interpersonal factors ranging from formation of subgroups to discord among group members themselves (e.g., Lau & Murnighan, 1998; Milliken & Martins, 1996; van Knippenberg, de Dreu, & Homan, 2004). Based off this literature, it could be reasoned that a group of co-workers or cohorts that share some organizational affiliation might not be as creative as individuals who share a deeper, intimate connection.

Hall and Williams (1966) demonstrated how established groups show higher performance on a problem-solving task than ad-hoc groups. But in terms of group size, Farrell (2001) argued creativity within a collaborative circle of people mostly came from the work of dyads. Farrell hypothesized that dyad members possess instrumental intimacy

consisting of trust, uninhibited exchange of ideas, and mutual support. Levine and Moreland (2004) also discovered that larger groups are less likely to be conducive to trust and support that can be found in pairs.

Individuals who come together to form a group possess the potential to generate creative products. Thus, products deemed creative must have come about by some aspect of the group and not solely based on the individuals composing the group. Sawyer and DeZutter (2009) posited a group's collective creative product comes from the interaction of the group members and is more than the contribution of any one individual. Their theory of distributed creativity predicts the generation of a creative product from individuals based on four principles: the activity has an unpredictable outcome (no one knows how it is going to come out); there is moment-to-moment contingency (meaning previous actions affect the next action); the interactional effect (each action can be affected by all members of the group); and equal shared collaboration. Pirola-Merlo and Mann (2004) investigated the relationship between team creativity and individual creativity. They found team climate contributed to each team member's creativity; however, significant variance was still unaccounted for. They speculated this unaccounted variance could be from within-group roles or individual differences in expertise and motivation. These additional individual factors of team climate, within-group roles, expertise, and motivation could have more predictability in intimate dyads.

The theory of shared cognition also provides evidence for intimate dyadic performance. First proposed by Wegner, Erber, and Raymond (1991), close couples possess transactive memory, a combination of information that is better than either one of the individual's memory alone. In this study, couples were individuals who were involved in a close dating relationship for at least 3 months. Some individuals were tested with their partners (intimate), while others were tested with an opposite-sex partner from another couple (impromptu). Both couples participated in a memory task, but the intimate couples showed better performance when structure on what to memorize was not given. When the researchers provided structure on what to remember, the intimate pairs fared equally

well as the impromptu pairs.

In measuring creativity in pairs with a shared connection, the goal for our study was to have an activity that would be fun for the individual and intriguing for both partners. Torrance (1966) outlined four dimensions representing common creativity: fluency, flexibility, originality, and elaboration. Fluency is the total number of ideas; flexibility looks at how many different categories these ideas cover; originality is how original a response is compared to common responses; and elaboration is how much detail is put into it (Althuizen, Wierenga, & Rossiter, 2010). The Thinking Creatively with Sounds and Words (TCSW) instrument by Torrance, Khatena, and Cunnington (1973), as they describe, is "a good imagination-stimulating creativity exercise" (Davis, 2004, p. 261). This test measures the originality of responses to various sounds played to an individual. The sounds are played multiple times, encouraging more original responses each time.

Torrance (1970) investigated dyadic creativity in college students and five-year olds. He found that working with someone else in a dyad (dyadic interaction) and being instructed to piggyback off partner's ideas stimulated the individuals in the dyad to come up with more original ideas compared with participants working alone. He found this dyadic interaction effect held only for the college student participants and not for the five-year-old participants.

This study aimed to determine if participants in close partnerships, possessing higher levels of intimacy, performed better on a dyadic creativity task when working together as opposed to working with a stranger. For the purpose of this study, intimacy was considered to be a feeling of closeness and connectedness, typified by the sharing of personal information common amongst romantic partners and/or close friends. This definition is based upon a study conducted by Waring, Tillman, Frelick, Russell, and Weisz (1980) that indicated, across the general population, self-disclosure is seen as the key defining aspect of intimacy across all types of relationships. Operationally, the criteria used to define intimate involvement stipulated the pair must have known each other for at least six months, providing a measure of stability and a shared intimate connection. We hypothe-

sized that intimate partnerships would do better than impromptu pairs on the TCSW. We also hypothesized that team climate, specifically participative safety, would influence the dyads and predict higher creative scores on the TCSW.

Method
Participants

The sample consisted of 14 undergraduate students who were recruited from various psychology and educational psychology courses. In recruitment, potential participants were told, "To participate, you must bring in a friend or romantic partner you have known for at least six months." Potential participants took consent forms with them and returned them on the day of the study. Participant couples self-reported being either friends or romantic partners. No additional data was collected regarding the length or quality of the relationship. The sample contained three dyads identifying as romantic partnerships and four dyads identifying as being friends. Although the researchers could not verify or definitely guarantee the participants were intimately involved, we concluded they more than likely possessed intimacy beyond complete strangers who had not interacted at all.

Instruments

To measure creativity, the TCSW subtest, Sounds and Images Forms IIA and IIB, was administered. The subtest involves playing sounds with specific qualities to elicit imagery. Khatena and Torrance (1998) found the reliability between the two forms to be .77. The sounds and Images subtest has validity coefficients ranging from .31 to .44 (Cooper, 1991). Davis (2004) noted most validity coefficients of creativity tests range from .40 to .50; however, many of them are lower. Thus, although these coefficients are somewhat below what is expected, they are well within the confidence intervals of what is standard for creativity assessments of this nature.

To measure participative safety after each administration of the TCSW, the participants individually completed the participative safety subscale of the Team Climate Inventory Shortform by Strating and Nieboer (2009). The participants rated four questions on a 5-point Likert scale and assessed to what extent they agreed with: a) "we

have a 'we are in it together' attitude;" b) "people keep each other informed about work-related issues in the team;" c) "people feel understood and accepted by each other;" and d) "there are real attempts to share information throughout the team." Coefficient alpha for these four items including all 28 responses (14 from Form A and 14 from Form B) was .78. The second question was not relevant to the short duration of this study's creative task, so it was omitted from all analyses. Coefficient alpha for the three included items was .83.

Procedure

Half of the participants were tested first with their intimate partners (intimate pairing), while the other half were tested first with an impromptu partner (impromptu pairing). Impromptu pairings were created by randomly assigning one member of each intimate couple to pair with a member of another intimate couple. The intimate and impromptu pairs took the TCSW Form IIA. Each dyad was given two pencils along with the test booklet. They were not given specific directions on how answers should be determined for the dyad, and the testing procedures were followed in accordance to the test manual, providing the dyad 15 seconds between sounds to write an answer. Afterwards, every participant was given the participative safety subscale to complete individually. The intimate couples that were tested first with an impromptu partner rejoined their intimate partner, and the couples that tested first in an intimate pairing were randomly assigned into impromptu pairs. Both sets of couples were given the TCSW Form IIB, and the same procedures from IIA were used with IIB. Participants rated their participative safety once more.

Results

Table 1 summarizes the means and standard deviations for Form IIA and Form IIB. A one-way analysis of variance to compare the couple groups (intimate and impromptu) on Form IIA was at the level of significance $F(1, 5) = 6.44$, $p = .05$, $\eta^2 = .56$. Comparing the couple groups (intimate and impromptu) on Form IIB was significant $F(1, 5) = 21.84$, $p < .01$, $\eta^2 = .81$. The means for each administration are plotted in Figure 1. Across all test scores, ignoring the administration of two different

Table 1. *Descriptive Statistics for TCSW IIA and TCSW IIB by Pairing*

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Min	Max	Percentile Rank[a]
TCSW IIA	Intimate Pairing	4	28.25	4.03	2.02	21.84	34.66	24	33	41
	Impromptu Pairing	3	20.33	4.16	2.40	9.99	30.68	17	25	14
	Total	7	24.86	5.64	2.13	19.64	30.07	17	33	35
TCSW IIB	Intimate Pairing	3	28.67	3.22	1.86	20.68	36.65	25	31	32
	Impromptu Pairing	4	19.00	2.31	1.16	15.33	22.67	17	21	3
	Total	7	23.14	5.73	2.19	17.85	28.44	17	31	9

Note. TCSW IIA/IIB - Thinking Creatively with Sounds and Words Form IIA & IIB
a. Percentile rank from (Khatena & Torrance, 1998)

forms of the TCSW, the intimate pairings (M = 28.43, SD = 3.41) performed better than the impromptu pairings (M = 19.57, SD = 2.99), $t(12)$ = 5.17, $p < .001$. Further, Cohen's d was 2.76, which suggests a very large effect.

Each participant answered the participative safety subscale after each administration of the TCSW (e.g., one of their scores was with their intimate partner while the other score was with an impromptu partner). To properly compare participative safety and TCSW scores, each participant was given two TCSW scores, one from their intimate pairing and another from their impromptu pairing. The participative safety mean scores from intimate pairings (M = 14.00, SD = 1.47) were compared with the mean scores from impromptu pairings (M = 12.36, SD = 3.08), $t(26)$ = 1.80, $p > .05$. All participative safety scores (N = 28) were correlated with all the TCSW scores (N = 28) to assess participative safety's ability to predict TCSW scores, r (28) = .37, $p > .05$. This correlation was not statistically significant; however, it is equivalent to a Cohen's d of .79.

Discussion

The results indicated a difference on the TCSW scores between the intimate pairings and the impromptu pairings, when considering the two separate administrations (IIA and IIB) and when not considering them. This suggests the intimate component of a relationship increases creative performance to a large degree on a dyadic test of creativity. Participative safety subscale scores reported by participants after intimate pairings did not differ significantly from those obtained after impromptu pairings. This could have been a result of insufficient power (small sample size) to find a significant result. A measure of practical significance; however, suggests a moderate effect and provides support for participative safety as an important factor in high creative performance. Participative safety scores being positively correlated with TCSW scores further support this.

Alternative explanations for these findings that intimacy had an impact on increased creativity include factors unrelated to intimacy, such as

role negotiation or reactive arrangements. Randomly assigned dyads could have been negatively impacted on their creativity score due to having to negotiate roles in the dyadic interaction, such as who would write the answers or how ideas should be generated. Intimate dyads may have been better able to negotiate these roles because of previous interactions, as opposed to being due to a deeper sense of connection. The participants knew the study was about intimacy and creativity as it was indicated on the consent form. The participants were not informed about the hypotheses behind the study; however, there is the possibility of Hawthorne-type effects influencing dyads to perform better when they were with their partner as opposed to being randomly assigned.

Additional research needs to be done to in order to better understand the impact intimacy has on creativity. Due to the small sample size in this study, characteristics of intimate dyads and close friend dyads could not be investigated. The differences between these specific types of relationships could have different impacts on dyadic creativity. In addition, we believe the construct of safety and cooperation was important in fostering creativity, and the team climate participative safety subscale was used to approximate this construct. However, it might not have been the most effective way to measure this construct, and better measures may exist to fully capture it and allow for more in-depth analyses. If the sample size was larger, participative safety may have been statistically significant; nevertheless, this study did support its practical significance and its use in this study was supported as an important factor in predicting creativity in dyadic pairs. With that in mind, Farrell's (2001) concept of instrumental intimacy may prove to be a better framework in order to understand dyadic creativity. Specifically, we could investigate intimate dyads in terms of their formation, performance, and dissolution as it relates to creativity (Arrow, McGrath, & Berdahl, 2000; Levine & Moreland, 2004). This might allow us to better identify common factors between romantically involved dyads and close friendships, in addition to isolating and empirically investigating the impact of factors on which they differ.

Towards this goal, one significant difference between romantic relationships and close friends is their different levels of passion (Sternberg, 1986). Though we did not differentiate between couples that were in a dating relationship from those in a close friendship for our study, higher passion (e.g., romantic attraction) between two people may also influence creativity
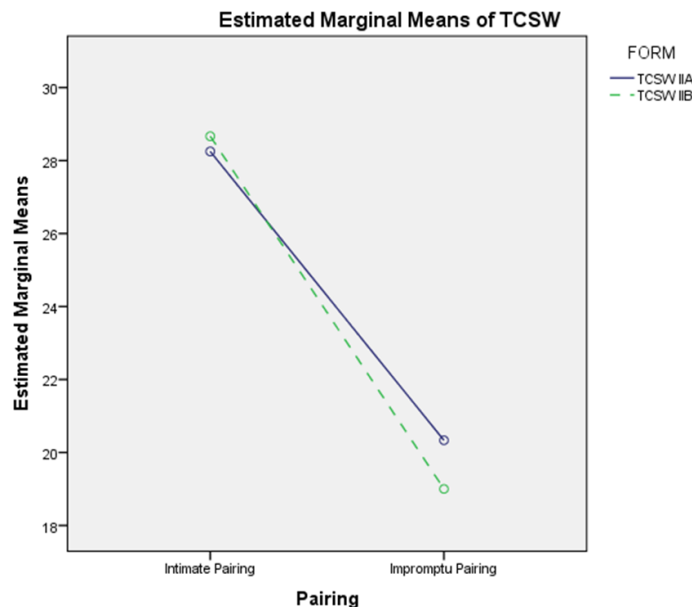

Figure 1. Means Plot of TCSW scores by Pairing

in dyadic groups and whether passion would have a direct or indirect relationship with creativity. Passion is one of the many aspects of intimacy that could impact creativity and its role warrants further investigation. As the impact of intimacy on creativity is better understood, intimacy could prove to be a driving force in helping various groups of people be more creative.

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Drug Use: Personal History, Mental Health, and the False Consensus Effect

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Abstract—Individuals with drug addictions face stereotypes and negativity in their everyday lives, due to stigma associated with the label of "drug user." Many users hide their behaviors in the hope others will not look down on them (Palamar, 2012). This project further investigated perceptions of drug use and users and the psychological factors related to those perceptions. Participants self-reported their own drug use and provided information regarding several aspects of their own history, such as media exposure and experience with a mentor. They also estimated how much a "typical" college student uses drugs, and they provided judgments about a fictional drug user provided to them via vignette. The most interesting result was the more a student used alcohol, the more he/she believed other students did as well (p = .076), and the less he/she thought others used tobacco [$r(93)$ = -.30, p = .004] or marijuana [$r(93)$ = -.37, $p < .001$]. This pattern may indicate a false consensus effect (Ross, Greene, & House, 1977). Other results, limitations, and future research possibilities are discussed.

Keywords: drug users, stereotypes, stigma, false consensus

Individuals with drug addictions face stereotypes and negativity in their everyday lives due to stigma and stereotypes associated with the social label of "drug user." Many drug users hide their usage in the hope others will not look down on them; for example, lifetime users of drugs such as marijuana and cocaine are likely to keep their usage a secret (Palamar, 2012). This secrecy could lead drug users to try to handle their problem on their own instead of going to a rehabilitation center; this choice is likely less effective than seeking professional help, and therefore is detrimental to positive change. Growing drug usage affects society in many ways including health care, foster care, and even school systems. Knowing the origin of people's perceptions and judgments of drug users can be beneficial in educating the population on the struggles of drug addicts. Identifying bias and its origins could potentially lower prejudice towards this group. One purpose of this project was to further the field of knowledge regarding perceptions of drug users and the psychological factors related to those perceptions. Another purpose was to provide additional insight into how one's personal history affects one's own choice to take drugs.

There are many types of drugs and drug users. Some drug usage is legal, such as when an adult drinks alcohol, but even legal drug usage might become drug abuse if taken to excess. "Drug abuse" could be defined as when one's drug use has reached the level of a substance use disorder, which the APA describes as maladaptive behaviors and/or negative reactions that were directly related to the drug usage (APA, 2013). Even when drug usage is not to the level of illegal or abusive behavior, it is still possibly stigmatized by others. The current study first explored whether student perceptions of others' drug use reflected their own use (a false consensus effect), and whether drug use in students was associated with their own personal histories. This study also investigated impressions of a fictional individual who transitioned from drug use to abuse, and whether participants' percep-

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tions varied based on several relevant factors. Each general construct is reviewed briefly below, followed by our hypotheses.

False Consensus

Most individuals seek social validation as a way to increase self-esteem. One way to experience this validation is believing one's thoughts and opinions are shared by their friends, family, and even the general population. When people over-estimate the degree to which others agree with their own beliefs, this phenomenon is the false consensus effect (Krueger & Clement, 1994; Marks & Miller, 1987; Monin & Norton, 2003; Mullen & Goethals, 1990; Ross, Greene, & House, 1977). For example, one study (Goel, Mason, & Watts, 2010) found college students are only 41% accurate at being able to guess when their "friends" on Facebook would disagree with their posted opinions. The participants over-estimated their friends' agreement, assuming their friends had like minds.

Research on the false consensus effect has gone beyond simple beliefs and values, and has also investigated whether people assume their behavioral choices would be shared. For example, Ross and colleagues (1977) asked participants if they would wear a sandwich board sign in public. Those individuals who would wear the sign were more likely to assume others would agree to wear the sign as well, and vice versa. In short, people tend to assume their own preferences and choices are reasonable and would match what others would think or do.

Although the false consensus effect seems to be a robust finding, the authors of the current study were unable to find any research on this phenomenon as applied to drug use or perceptions of drug use on college campuses. When applied to perceptions of drug use, this phenomenon could help or hurt, depending on the peer pressure and norms any given student perceives. If a student at college believes all "typical" students experiment with drugs or drink to excess on weekends, that student may be more likely to engage in dangerous behaviors. This study attempted to offer at least some insight into whether the false consensus effect occurs on campuses as re-

lated to drug and alcohol use and perceptions. As a result, the first hypothesis stated students' self-reported patterns of their own use of alcohol, tobacco, and marijuana would be positively correlated with their perceptions that the "typical" college student on their campus also used these drugs to the same degree.

Experience with a Mentor

One factor in perceptions of drug users is how their backgrounds influenced their choices to use (or abuse) drugs later in life. Children look up to those around them for cues on how to act (Bandura & Walters, 1963; Patock-Peckham, Cheong, Balhom, & Nagoshi, 2001). For example, a parent using drugs can send a message to a child that it is acceptable, leading the child to take after his or her parents. Years of research on modeling show that children are likely to copy behaviors they see in parents, role models, and other relevant social agents in their environment (Bandura & Walters, 1963; Patock-Peckham et al., 2001; Klee, 1998).

To counteract future drug use in the United States, numerous programs have been created to decrease the nation's youth from becoming interested in drug usage. Mentors against drug use create an environment that frowns upon drug use, which lowers the probability a child will partake in drugs. Previous studies have found youth in longer-mentored relationships (i.e., longer than 12 months) have a significantly decreased chance of drug use compared to youth with no mentors (Rhodes, Reddy, & Grossman, 2005). Consequently, the second hypothesis of the current study was having a mentor in one's life will be associated with decreased likelihood of personal drug use.

Self-Esteem & Anxiety

Social norms, peer pressure, and negative stigmas can have various detrimental effects on one's self-esteem and general sense of worth (Heatherton, Kleck, Hebl, & Hull, 2000; Jussim, Palumbo, Chatman, Madon, & Smith, 2000). People suffering from negative appraisals may have lower self-esteem and try to resolve this tension; one example is using drugs and/or drinking to fit in or cope (Richard, Trevino, Baker, & Valdez, 2010).

Anxiety might also interact with the false consensus effect; anxiety could cause people to over-analyze and overestimate their peers' activities and, consequently, could lead to overconsumption to live up to misconstrued norms and peer pressure, even if that pressure is self-generated.

Low self-esteem can add to the possibility of future drug use as well. If people have experienced previous social rejection, they may be more sensitive to avoiding ostracizing situations. For example, Palamar (2012) found respondents were more likely to hide their drug usage because of rejection they had received previously in other situations (i.e., not necessarily related to drug use). Thus, users who have been made ashamed of their behaviors in the past may have generalized low self-esteem and social anxiety. These issues could potentially both increase future use (as an escape) and decrease likelihood of asking for help (due to social humiliation). Lowered self-esteem could be correlated with the possibility of being marked as a "drug user," a negative social stigma, furthering social rejection. Negative appraisal from others can have a great impact on future drug use of adolescents and in turn can influence later drug usage (Richard et al., 2010). However, the links between self-esteem, anxiety, and drug use warrant additional research. Such findings led to the third hypothesis: Higher self-esteem will be negatively correlated with drug use, whereas anxiety will be positively correlated with drug use.

Drug Use in the Media

Self-esteem, anxiety, and one's background might help predict drug use, but another factor may be the media. In this era of technology, more people are online, have a smart phone, or have a social media account, such as Facebook, Twitter, or Tumblr. People are now able to have the news and people's opinions in a matter of seconds. In addition, the media contributes to our views of what is normative and acceptable. Television shows, magazines, and commercials are a pervasive source of images of what a "typical" drug user is or how they are generally portrayed.

Media images can be biased. One study (Lancaster, Hughes, Spicer, Matthew-Simmons, & Dillon, 2011) found various sources of media can have agendas regarding outcomes they favor. For example, media images can frame issues in certain positive or negative ways (e.g., how well prisoners are treated). Another example is when media sources try to influence political debates, such as pushing drug policies or the image that drug users are deviants or criminals. Because these images are so ubiquitous, consumers may take what they see at face value without questioning such portrayals of drug users, bolstering negative stereotypes and stigmas.

Students starting college may also look to the media for how to act in this new social setting. Stereotypes could lead college students to overestimate how much the typical college student partakes in drugs and alcohol, due to how much drinking and drug use are highlighted in movies, television shows, and so on. One study (Martens, Page, Mowry, Damann, Taylor, & Cimini, 2006) found only 3% of students actually reported using alcohol daily in the last 30 days, whereas 46% of the student population reported a "typical" student consumes alcohol daily. There is a definite gap between actual and perceived norms in college campuses. This gap in norms could become a self-fulfilling prophecy (Madon, Guyll, & Spoth, 2004). College students may believe drinking and using drugs are a way of life because of their limited experience and what they have seen on television. In short, media images may normalize drinking behavior and lead students to be more likely to engage in drug activities. This research led to the fourth hypothesis: Participants who self-report consuming higher amounts of media images will report higher amounts of drug usage (a positive correlation).

Stigmas of Drug Usage: Perceptions of Others

So far, the hypotheses have focused on individuals' own drug use. The final hypothesis, however, explored whether participants would place judgments and stigmas on others who use drugs, and whether these judgments would change depending on the background experiences of those targets. In other words, the final topic of the current study was to investigate how individuals perceive heavy drug users and whether those perceptions are affected by an experimental manipulation of a fictional drug user's history and background.

One aspect of drug usage relevant to judg-

ment from outside observers is the idea that exposure to drug use in one's past may not have been a choice (e.g., observing parents use drugs), whereas taking drugs oneself is considered to be a choice by observers, and therefore is more subject to social judgment. Thus, people exposed to drugs throughout their lives as a "normal" routine (e.g., grew up in a family with users) are in a different situation compared to college students who decide to experiment with marijuana at a party without ever seeing it before. In this hypothetical situation, perhaps observers would have more empathy toward people exposed to drugs early in life who become drug abusers than people not exposed to drugs early in life who become drug abusers.

One relevant study found if parents used drugs, then their children had a greater probability of using drugs later in life compared to those individuals never exposed to drugs (Patock-Peckham et al., 2001). It is possible outsiders may be more understanding and empathic toward drug users who had early exposure to drug use or abuse, compared to drug users who chose to experiment later in life. However, little research has explored whether childhood exposure influences observers' judgments or stigmas. The current study included this variable in the experimental vignettes in an attempt to provide further insight into the relevance of past experience on current judgments of drug use.

Though judgments of others can take many forms, the current study chose to focus on two specific aspects of social stigma or stereotypes about the fictional character described in the experimental materials. First, observers might judge drug users on the personality trait called conscientiousness. Conscientiousness can be seen as having control, self-discipline, or being detail-oriented (Arthur & Graziano, 1996). Typical drug users are not portrayed as being high in these qualities, and some studies show they are, in fact, low in conscientiousness. For example, research has shown conscientiousness is negatively correlated with drug usage, and people high in conscientiousness are less likely to partake in drugs later in life (Kashdan, Vetter, & Collins, 2005; Roberts & Bogg, 2004).

Similarly, observers of drug users might assume those users have low self-esteem. Again, past research has shown this connection between drug use and low self-esteem does seem to be pervasive (e.g., Becker & Grilo, 2006; Miller, 1988; Nyamathi, Bayley, Anderson, Keenan, & Leake, 1999). Individuals asked to estimate a fictional drug user's self-esteem may assume it is low, either as a cause or effect of the drug use. The question investigated in the current study was whether these estimates of self-esteem in another would vary based on a description of the person's family background and childhood drug exposure. For both self-esteem and conscientiousness, people who grew up in a family surrounded by drugs and drug users could be perceived as modeling these behaviors resulting in being less successful, less driven, and less accepting of self. The research above led to the fifth and final hypothesis: When reading fictional vignettes about a college student who uses drugs, a character exposed to drugs early in life will be perceived as having lower self-esteem and lower conscientiousness than a character who first tries drugs as a casual recreational activity in college.

Method
Participants

The study included 94 undergraduate college students (35 men, 59 women) between the ages of 18-27 years ($M = 19.33$, $SD = 1.40$). Ethnicity was: 78.49% Caucasian, 8.60% Hispanic/Latino, 4.30% African American, 3.23% mixed race, 3.23% other, and 2.15% Asian. The students were solicited through university bulletins and class announcements. In return for their participation, students received extra credit from their professors.

Predictor Variables

Prior drug usage. Participants were given a questionnaire about their previous drug usage within the last three months. There were three main drugs participants were questioned about: alcohol, nicotine, and marijuana. Harsher drugs were not included in the survey due to concerns from the hosting university's institutional review board and in hopes participants would be more honest in responses regarding these three more common forms. Questions were modified from the survey created by the American College Health Association (2007). For each drug type, two questions were used. For alcohol, participants were

asked how often they used alcohol in the last three months by checking one of the following: 1 (Never used), 2 (About once a month), 3 (Several times a month), 4 (Several a week), or 5 (Every day). Second, participants were asked, "Last time you 'partied'/socialized how many drinks did you have?" Participants simply wrote a number down, and this was averaged with the first question to measure alcohol use. Questions were modified for nicotine and marijuana to use appropriate terminology, then all six items were averaged for overall drug use, where higher scores indicated more substance usage. For this sample, the mean for alcohol use was 2.86 (*SD* = 2.29), the mean for marijuana use was 0.70 (*SD* = 0.61), and the mean for cigarette use was 0.74 (*SD* = 0.76). For overall usage, the mean in this sample was 1.45 (*SD* = .88).

Self-esteem. Self-esteem was recorded using Rosenberg's Self-Esteem scale (1965). The scale contains ten statements such as, "At times, I think I am no good at all," and "I feel that I have a number of good qualities." Responses were on a 4-point Likert scale, ranging from 1 (*Strongly Disagree*) to 4 (*Strongly Agree*). The possible range of the scores was from 10 to 40, with higher numbers indicating more self-esteem. The mean of this sample was 32.11 (*SD* = 4.72), and internal consistency of items was good, *alpha* = 0.86.

Media exposure. Media exposure was recorded using a questionnaire written by the authors. Participants reported how many hours they spent on four specific forms of media: magazines/newspapers, television, movies, and social media websites. For example, one question asked, "How many hours do you spend reading magazines or newspapers a week?" Respondents circled a range of hours that was assigned a dummy code accordingly: 1 ("Less than 10 hours"), 2 ("10-20 hours"), 3 ("20-30 hours"), 4 ("30-40 hours"), 5 ("40-50 hours") or 6 ("More than 50 hours"). In addition to the individual variables, dummy code responses on all four items were summed to obtain a total media exposure score; the possible range of this variable was from 4 to 24, with higher numbers indicating more media exposure. The mean of this sample for the overall measure was 6.47 (*SD* = 2.11).

Anxiety. Anxiety was recorded using Hamilton's Anxiety scale (1959). The scale contains 14 common symptoms of anxiety such as "Blurred vision," "Dry mouth, flushed skin, sweating," and "Muscular aches or pains." Each item was scored on a 4-point Likert scale, with the possible answers ranging from 0 (*Not at All*) to 4 (*Incapacitating*). The total score range was 4-56, where < 17 indicated mild severity, 18-24 indicated mild to moderate severity, 25-30 indicated moderate to severe, and 31-56 indicated severe anxiety. The mean of this sample was 10.88 (*SD* = 7.88), and internal consistency of items was good, *alpha* = .86.

Mentor history. Mentor history was recorded using a questionnaire created by the authors. Participants were asked to think of a particular mentor in their lifetime and to answer two questions specifically about that mentor. The top of the page read, "For this survey, a 'mentor' is anyone who you looked up to, who helped you with advice, who helped you make big decisions, etc." First participants answered, "How close were/are you to your mentor?" with scores ranging from 1 (*Very close*) to 5 (*Very distant*). Second, they answered, "In your opinion, how much has this mentor impacted your choices for the future?" with scores ranging from 1 (*Very much*) to 5 (*Not at all*). These two items were first reverse coded so that higher numbers indicated a closer and more influential mentor, then the items were averaged to form a total mentor score. If participants reported not having a mentor, they were assigned a mentor score of zero. The mean for the current sample was 1.12 (*SD* = 0.57).

Independent Variable: Vignette Manipulation

Questionnaires contained one of two vignettes describing a biography of a fictional 22-year-old male, John (see the appendix for full versions). John was either portrayed as a typical college student with a very supportive family who happened to stumble upon drugs and alcohol in college, or as a factory worker with a very detached family who had grown up in a drug-using environment. In both vignettes, John's actual drug-using behavior were identical and included use of both marijuana and alcohol. Thus, any significant differences in perceptions of John across condition would be based on his personal background and

current employment, and not based on his drug behaviors. In this way, stereotypes could be investigated from a more focused approach. Wording of the vignettes was partially taken from Link, Phelan, Bresnahan, Stueve, and Pescosolido (1999) and partially written by the authors to manipulate the characters' past experience.

Dependent Variables

Perceived self-esteem. Participants were asked to fill out the Rosenberg's Self-Esteem scale (1965) again, but this time taking on the role of the drug user from the vignettes, John. In other words, instructions asked participants to complete the scale as if they were John. This post-vignette variable was calculated in the same way as the pre-vignette variable; this time, the average score of the sample was 18.55 (SD = 5.19), and the alpha was still good, *alpha* = .86.

Perceived conscientiousness. Conscientiousness was recorded using the John and Srivastava Big Five Personality Inventory (1999); again, participants were asked to complete this scale as if they were the fictional drug user, John. The scale contained 8 items such as, "Does a thorough job," and "Makes plans and follows through with them." Responses range from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Possible scores thus ranged from 8 to 40, with higher scores indicating higher conscientiousness. The mean for this sample was 15.74 (SD = 4.15), and internal consistency was acceptable, *alpha* = .73.

Perceived drug usage of college students. Participants were next asked to complete the same questionnaire about drug usage in the last three months (see "prior drug usage" in the predictor variables section above), but this time were asked to complete it as if they were the "typical" student

at their college. Again, scores were calculated in the same way as before for this survey, but for the perceived "typical" college student, the average of alcohol was 4.61 (SD = 1.66), marijuana was 1.72 (SD = .92), and tobacco was 2.60 (SD = 1.60). The overall perceived drug usage in a "typical" college student for our sample was 3.01 (SD = 1.09).

Procedure

All questionnaires and surveys were administered in a classroom setting. Prior to the questionnaire, each participant was given a consent form. All participants were given 30 minutes to complete the questionnaire. The order of materials was as follows: demographics, self-esteem, anxiety, media exposure, personal drug usage, drug usage questionnaire as a "typical" student, mentoring history, vignette (randomly assigned to condition), self-esteem scale as if they were John, and the conscientiousness scale as if they were John. Following the conclusion of the questionnaire, participants were thanked for their time and given a debriefing sheet regarding the nature of the study. This study was approved by the hosting institution's Internal Review Board for ethics.

Results

Hypothesis 1

The first hypothesis stated students would perceive a "typical" college student as having similar drug experiences as themselves (a false consensus effect). A correlation matrix was used between the three drug variables (alcohol, marijuana, and tobacco) for each participant's personal drug usage and perceived drug use in a typical college student; results are shown in Table 1. The positive correlation between participants' own alcohol use and perceived alcohol use in other students ap-

Table 1. *Correlations between Individual's Usage of Alcohol, Marijuana, and Tobacco on the "Typical" College Student's Alcohol, Marijuana, and Tobacco Usage*

	Typical Alcohol	Typical Marijuana	Typical Tobacco
My Alcohol	.18	-.37*	-.30*
My Marijuana	-.09	-.04	-.13
My Tobacco	-.02	-.03	-.11

Note. * p < .05; degrees of freedom for all correlations = 94. "My alcohol," "my marijuana," and "my tobacco" refer to participant's own use of each drug, respectively.

Table 2. *Correlations between Individual's Self-Esteem and Anxiety on Individual's Alcohol, Marijuana, and Tobacco Usage*

	Me Alcohol	Me Marijuana	Me Tobacco
Self-Esteem	.18	-.09	-.06
Anxiety	-.10	.26*	.26*

Note. * $p < .05$; degrees of freedom for all correlations = 94

proached statistical significance [$r(94) = .18$, $p = .076$]. In addition, the more participants used alcohol as their drug of choice, the less they thought a "typical" student would use tobacco [$r(93) = -.30$, $p = .004$] or marijuana [$r(93) = -.37$, $p < .001$]. Correlations for own use of tobacco and marijuana were not significantly related to perceptions of others' use of these drugs. This may be due to the fact the sample did not report much individual use of tobacco or marijuana, restricting the reported range on these variables. Thus, Hypothesis 1 was partially supported, but only for alcohol.

Hypothesis 2

Hypothesis 2 stated that having a mentor would be associated with decreased likelihood of personal drug usage. Surprisingly, results showed having an influential mentor was associated with increased overall drug use, $r(94) = .20$, $p = .049$. Degree of mentorship also approached significance for alcohol use, $r(94) = .19$, $p = .071$. The correlations between mentor history and tobacco [$r(94) = .01$, $p = .093$] and marijuana [$r(94) = .16$, $p = .130$] were not significant. Hypothesis 2 was not supported.

Hypothesis 3

Higher self-esteem was predicted to be negatively correlated with drug use, whereas anxiety would be positively correlated with drug usage. A correlation matrix was conducted between self-esteem, anxiety, and all three drug variables; results are shown in Table 2. The results show a positive correlation between self-esteem and alcohol use [$r(94) = .18$, $p = .079$] that approached significance, but no association between self-esteem and use of tobacco or marijuana. Anxiety, however, showed the opposite pattern. There was no correlation between anxiety and alcohol use [$r(94) = -.10$, $p = .337$], but anxiety was significantly positively correlated with using both tobacco [$r(94) = .26$, $p = .009$] and marijuana [$r(94) = .26$, $p = .010$]. Thus, Hypothesis 3 was partially supported.

Hypothesis 4

This hypothesis expected higher amounts of media exposure would be positively correlated with drug usage. All relevant correlations are shown in Table 3. Results from these analyses found the amount of time spent reading magazines/newspapers was positively correlated with marijuana usage [$r(94) = .28$, $p = .007$]. Two other correlations approached significance: time watching movies and alcohol use [$r(94) = .18$, $p = .07$] and time on social media and alcohol use [$r(93) = -.19$, $p = .07$]. Overall, then, Hypothesis 4 was partially supported.

Table 3. *Correlations between Media Exposure Forms on Alcohol, Marijuana, and Tobacco Usage*

Media (Spent in Hours)	Me Alcohol	Me Marijuana	Me Tobacco
Magazines/Newspapers	-.06 (94)	.27* (94)	-.07 (94)
Television	.15 (94)	.14 (94)	-.04 (94)
Movies	.18 (94)	-.03 (94)	.00 (94)
Social Media	-.19 (93)	-.02 (93)	-.03 (93)
Overall Media Exposure	.03 (94)	.06 (94)	-.06 (94)

Note. * $p < .05$; parentheses show degrees of freedom for each correlation

Hypothesis 5

When reading fictional vignettes about a college student who uses drugs, participants were expected to believe a character exposed to drugs early in life and who became a factory worker would be perceived as having lower self-esteem and conscientiousness than a character who first tried drugs as a recreational activity while in college. For self-esteem, participants perceived the character of John to have higher self-esteem when he started drugs in college ($M = 19.15$, $SD = 5.10$) compared to when he started using earlier in life ($M = 17.93$, $SD = 5.26$) but this difference was not significant, $t(94) = 1.13$, $p = .26$. Similarly, participants perceived the character of John to have slightly higher conscientiousness when he started drugs in college ($M = 15.79$, $SD = 4.74$) compared to when he started earlier in life ($M = 15.70$, $SD = 3.48$), but again, this difference was not significant, $t(94) = 0.11$, $p = .91$. In sum, Hypothesis 5 was not supported.

Discussion
Summary and Interpretation of Results

In general, two of the five hypotheses were partially supported while the other three were not supported. Though some results were surprising, conclusions can still be gathered. For Hypothesis 1, the more students chose to drink alcohol, the more likely they were to believe other, "typical" students at the same university also drank alcohol (although this was a marginal finding), and more alcohol use was significantly associated with the belief other students did not use tobacco or marijuana. This result provides some support for the idea of a false consensus effect (Ross et al., 1977), in which individuals believe their own choices and behaviors are typical. The false consensus phenomenon may have interesting implications for stereotypes and social stigmas targeted at drug users with different patterns of behavior, due to a lack of ability to relate.

The most surprising finding was the positive correlation between having a mentor earlier in life and being now more likely to use drugs and alcohol. Certainly, this goes against our hypothesis and against previous research. One very likely reason this unusual finding occurred was the items related to mentor history were not well written and could

have provided some confusion to the participants. Even though the top of the page about mentor history specified in this study, a "mentor" was to be someone who provided advice and helped the participant make decisions, the items did not clearly indicate they were to think of someone who had a positive – and not negative – influence. Thus, participants may have thought of role models who inevitably led them to negative health choices, including drug experimentation. This is a significant limitation to the current study's procedure. Future research should be careful in specifying type of mentor. However, it also provides some evidence that role models can influence later drug use, in either a positive or negative direction.

The results also showed anxiety and use of both tobacco and marijuana were significantly and positively correlated. It is possible higher anxiety levels may lead college students to partake in marijuana and tobacco as stress relievers. However, it is also possible students who use marijuana and/or tobacco are more likely to experience stress and anxiety for other reasons. Because this study was only able to use correlational data, causal inferences cannot be made. Future research could attempt to investigate this link further by including additional predictor variables or by experimentally manipulating short-term stress, to see if marijuana and tobacco use increase.

There was also a marginally significant positive association between self-esteem and alcohol use. In past research, adolescents who are constantly shown negative appraisals by individuals around them are more likely to internalize the negative appraisals and use substances to cope with the resulting negative feelings about themselves (Richard et al., 2010). However, other research suggests the opposite: high self-esteem gives individuals a false sense of power and leads them to use drugs, thinking nothing bad could happen (Goldberg & Fischhoff, 2000). The current data cannot offer insight into this debate due to the lack of significant findings, but future research should continue to explore the link between self-esteem and substance use.

The fourth hypotheses investigated associations between media exposure and drug use. Unfortunately, the media exposure questions were relatively broad and were focused on the total

amount of time exposed to media, instead of specifically asking about types of media. For example, reading a magazine could mean one is reading either Time or High Times, which might explain the positive correlation between magazine exposure and marijuana use. Future research could focus on specific forms of popular and social media and how students create their perceptions of drug users from each source.

Finally, the manipulated variable (fictional vignettes about history of drug use) produced almost no differences in how participants viewed the character's self-esteem and conscientiousness. Perhaps participants were more focused on the student simply being a drug user and not on how, specifically, the student became a drug user. In short, the manipulation was not influential, at least on the dependent variables measured here. This potentially highlights previous findings that people stigmatize drug use and its negative effects without taking situational variables or history into account (Luoma et al., 2007). Even when asked to take on the role of the drug user, participants still perceived their self-esteem to be very low, regardless of experimental condition. Across all participants and conditions, participants' own self-esteem averaged at 32.11, while they estimated John's self-esteem to be only 18.55. The lack of difference by experimental condition offers possibilities for future research on why observers may focus on a drug user's current activities when making judgments, instead of considering his or her preceding life events.

Additional Limitations

The discussion above points out several limitations of the study's materials and procedure. In addition, a limitation of the current study was the sample's low levels of drug usage in general, especially for marijuana and tobacco. These low levels of use may have created a restricted range and a possible floor effect for all relevant analyses. Therefore, the generalizability and conclusions that can be drawn from this particular sample are questionable. The ideal sample would include both college students who do not engage in drugs or alcohol as well as high-frequency users or abusers, to allow for a contrast between these two types of individuals.

In addition, the sample was relatively homogenous. Although there were 94 participants, the pool from which the sample was drawn was not representative of young adults in general. For example, most of the participants were first- or second-years in college. This removes the upperclassmen and their views from the data; it is possible being in college longer changes one's views of drug use, as one is more likely to be of legal drinking age. Future research should thus attempt to use both a larger and a more diverse sample of participants.

Finally, the current study was a very small attempt to begin exploring the constructs and associations at hand. A more thorough investigation of each hypothesis would require intensive materials and/or experimental methodology. The vignettes could be changed to manipulate a wide variety of variables that could affect outsiders' perceptions of a drug user. It is also probably the case that the stigma associated with using marijuana is different from the stigmas associated with alcohol and tobacco use, as the latter two drugs are legal in the study's state (based on age), while marijuana is not. Future research could split up these different types of drugs more explicitly or change the vignettes to portray the character as using different forms of drugs. The items asking about each predictor variable (e.g., mentor history, media exposure, mental health) could be also be expanded and made both clearer and more specific. Many future directions are possible, given the limitations of the current work.

Implications and Conclusions

The current study examined media exposure, mentor relationships, prior history of drug usage, self-esteem, and anxiety in regards to whether these constructs are associated with drug use in college students. It also examined whether experimental manipulation of a fictional character's background would influence perceptions of that character, in terms of projected self-esteem and conscientiousness. Although some hypotheses were partially supported and others were not, the data imply additional research is needed to understand the underlying variables the population takes into account when perceiving and judging drug users, as well as what factors are relevant

when choosing to take drugs oneself. In the best case scenario, drug users will seek treatment; but stigma, peer pressure, and false perceptions related to their own and others' usage may keep them from treatment. If research can determine ways to decrease social stigma and increase empathy and understanding toward drug users, they may be more likely to complete treatment programs and potentially ameliorate the negative effects drugs can have, both on individuals and on society at large.

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Appendix: Fictional Vignettes

College Student Condition

John is a 22 year old college age student who has lived in a small suburb all of his life. John has always had the "right" kind of friends who never touched drugs or alcohol. Even as a child, John participated in D.A.R.E. (Drug Abuse Resistance Program). John was always involved in sports and had a weekend job. His parents were always involved in his life from going to sports games to having family vacations. John is currently a senior going to First State University. Five years ago John smoked marijuana for the first time with friends at a party. During the last few months he has been

smoking it in binges that last several days at a time. He has gained weight and often experiences binge eating when he smokes. When John's friends try to talk about the changes they see, he becomes angry and storms out. Friends and family have also noticed missing possessions and suspect John has stolen them. He has tried to stop smoking marijuana but he can't. Each time he tries to stop he feels very tired and depressed and is unable to sleep. He lost his job a month ago after not showing up for work. John also has started to drink more alcohol than his usual amount. In fact, he has noticed that he needs to drink twice as much alcohol as he used to get the same effect. Several times he has tried to cut down, but he can't.

Childhood Experience Condition

John is a 22 year old factory worker at United Products. John's relatives also work at the company and that is who he lives with. John's family has always used drugs since John was little, especially his parents. Ever since John can remember his parents have both had more than one job and were never quite involved in his life. His parents were usually working or at a friend's house using drugs. John never participated in a program like D.A.R.E. (Drug Abuse Resistance Program) when he was younger. When John was 12 years old, John smoked marijuana for the first time with friends at a party. During the last few months he has been smoking it in binges that last several days at a time. He has gained weight and often experiences binge eating when he smokes. When John's friends try to talk about the changes they see, he becomes angry and storms out. Friends and family have also noticed missing possessions and suspect John has stolen them. He has tried to stop smoking marijuana but he can't. Each time he tries to stop he feels very tired and depressed and is unable to sleep. He lost his job a month ago after not showing up for work. John also has started to drink more alcohol than his usual amount. In fact, he has noticed that he needs to drink twice as much alcohol as he used to get the same effect. Several times he has tried to cut down, but he can't.

Cognitive Flexibility and Resilience: Relationships among Intolerance of Uncertainty, World Assumptions, and PTSD Symptoms

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Abstract—Trauma exposure can produce symptoms of posttraumatic stress disorder (PTSD), such as re-experiencing symptoms (e.g., flashbacks, nightmares), avoidance of trauma-related cues, hyper-arousal, and negative changes in thoughts and moods (American Psychiatric Association, 2013). Although it has been well established that event characteristics significantly contribute to PTSD risk and resilience (e.g., Kessler, Sonnega, Bromet, Hughes, & Nelson 1995), there is mounting evidence that cognitive factors might also play an important role (e.g., Foa, Steketee & Rothbaum, 1989). The current study examined the relationships among event characteristics, intolerance of uncertainty (IU), negative beliefs about the world and one's self, and posttraumatic stress (PTS) symptom severity in a sample of 214 undergraduate students. As expected, cognitive factors explained PTS variance above and beyond that of event characteristics alone, and both IU and negative beliefs were significant predictors of PTS symptom severity. When PTS symptom clusters were examined separately, cognitive variables most strongly predicted the hyper-arousal and negative cognitions symptom clusters. These findings support the role of cognitions in responses to trauma and suggest targeting IU might be a tool to aid in the prevention and treatment of PTSD.

Keywords: posttraumatic stress disorder, intolerance of uncertainty, world assumptions

The American Psychiatric Association (APA) defines trauma in the first criterion (i.e. criterion A) of the Posttraumatic Stress Disorder (PTSD) diagnosis in the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; APA, 2013) as an event that involves threat to one's life or physical integrity. Most people experience at least one trauma in their lifetime (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). PTSD is one consequence of inadequate emotional processing of the traumatic event and can be characterized by symptom clusters that include re-experiencing symptoms, avoidance symptoms, negative mood and cognitions, and hyperarousal (APA, 2013).

Kessler et al.'s (1995) population-based survey shows that the prevalence of trauma exposure in the general population exceeds 50%; however,

the prevalence of PTSD is close to 8 %. Although trauma exposure is a necessary condition for the development of PTSD, others factors must influence the development of PTSD. For example, there is mounting evidence that event characteristics predict PTS (posttraumatic stress) symptom severity following a trauma. Previous research has found more severe PTS symptoms following events that are interpersonal in nature (Kessler et al., 1995), involve greater injury (Koren, Hemel, & Klein, 2006), and involve exposure to multiple traumatic events versus a single exposure (Gurevich, Devins, & Rodin, 2002).

Still, given the relatively low rates of PTSD even among those individuals who report multiple traumatic events, it is clear that non-event factors contribute to PTSD etiology and maintenance.

Many theories have been proposed implicating cognitive factors in influencing risk and resilience to prolonged symptom maintenance and severity (Ehlers, & Clark, 2000; Foa, Steketee, & Rothbaum, 1989). One such association is between PTS symptom severity and the assumptive world. The assumptive world refers to a set of basic expectations concerning the world, others, and oneself that tends to be rigid over time and serves to guide a person in planning, behavior, and decision making throughout everyday life (Lilly & Pierce, 2013). In a highly influential study by Janoff-Bulman (1989), world assumptions of trauma victims were compared to those of non-trauma victims. Results of the study indicated trauma victims differed from their non-victim counterparts in perceptions of self-worth and benevolence of the interpersonal world, specifically demonstrating an increased likelihood compared to non-victims to perceive self and others more negatively. Janoff-Bulman theorized that a traumatic event might disrupt long-held assumptions about self-worth and the benevolence of the world. Other studies have replicated the finding that more negative world assumptions are associated with greater PTS symptoms (e.g., Monson, Gradus, LaBash, Griffin, & Resick, 2009).

There is also substantial evidence outside the PTSD field that other cognitive factors might contribute to risk and resilience following trauma. Intolerance of uncertainty (IU) has been defined as a predisposition to negative reactions to events involving uncertainty (Ladouceur, Gosselin, & Dugas, 2000) and has been implicated in the etiology and maintenance of several disorders, such as generalized anxiety disorder (Andrews & Borkovec, 1998), obsessive compulsive disorder (Holaway, Heimberg, & Coles, 2006), and depression (Dugas, Schwartz & Francis, 2004).

Carleton, Norton, and Asmundson (2007) further broke down IU into distinct, yet interrelated sub-factors of inhibitory IU and prospective IU. Inhibitory IU can be conceptualized as excessive avoidance tendencies as well as the inability to act in the face of uncertainty. Prospective IU, on the other hand, refers to perception of uncertainty as a threat and as a precursor to some highly undesirable outcome. It has been found that cognitive styles in prospective and inhibitory IU contribute uniquely to worry, social anxiety, and depression in adolescents (Boelen, Vrinssen, & van Tulder, 2010). Fetzner, Horswill, Boelen, and Carleton (2013) conducted one of the only studies examining the IU subtypes in relation to PTS symptoms and found a positive relationship between PTS symptom severity and inhibitory IU (but not prospective IU) in a community sample of adults who reported heterogeneous trauma histories and current or past anxiety.

Despite the fact there is limited research investigating the direct relationship of IU to PTSD, associations can be made based on studies that have investigated the relationship between intolerance of uncertainty and other cognitive variables linked to PTSD, such as worry. Numerous studies have implicated worry as a contributor to PTSD etiology and maintenance (Dugas, Gosselin, & Ladouceur, 2001; Ehlers, Mayou, & Bryant, 1998; Hinton, Nickerson, & Bryant, 2012; Roussis & Wells, 2006). Unlike IU which describes the extent of negativity associated with uncertainty in the present and future, anxiety or worry refers to "a future oriented mood state associated with preparation for possible, upcoming negative events" (Craske et al., 2009, p. 1067). Although some degree of uncertainty is inherent to worry, the focus of attention in worry is not on the uncertainty itself but rather the imagined negative event perceived to be inevitable. Bardeen, Fergus, and Wu (2013) found IU levels moderated the relationship between worry and PTS symptoms such that high levels of IU corresponded to a much stronger positive association between worry and PTS symptoms than at low levels of IU. The relationship between IU and general anxiety can be further clarified by examining recent literature which indicates levels of IU can distinguish between participants with low to moderate and severe anxiety symptoms (Dugas et al., 2010) and IU can serve to moderate the relationship between anxiety symptoms and other mood symptoms such as anger (Fracalanza, Koerner, Deschenes, & Dugas, 2014). Even if general anxiety and IU might seem like largely overlapping concepts, the aforementioned results support Norr et al.'s (2013) assertion that IU is a unique cognitive bias playing a role in heightening anxiety sensitivity. Because IU and anxiety are so intricately related and con-

sidering the high degree of comorbidity between PTSD and other anxiety disorders (Sareen, 2014), it might follow that IU uniquely contributes to variability in PTS symptom risk and resilience following a trauma.

Although there is limited research investigating the direct role of IU in resilience to PTSD, evidence for the role of IU in PTS symptom maintenance and etiology can be found within the neurobiological literature. Noted functional deficits in the anterior cingulate cortex, a region previously implicated in the inhibition of fear and anxiety (Milad, Quirk, Pitman, Orr, & Rauch, 2007), positively predict IU (Schienle, Kochel, Ebner, Reishofer, & Schafer, 2010) as well as PTS symptom severity and maintenance (Offringa et al., 2013). Similar patterns of consistency further supporting the links among brain functioning, IU, and PTS symptoms are observed in the dorsolateral prefrontal cortex (Cohen et al., 2004) and the amygdala (Hull, 2002; Schnienle et al., 2010).

These findings taken together suggest a prominent theoretical, behavioral, and neurobiological overlap in the maintenance of PTS symptoms as well as an uncertainty intolerant cognitive style. Despite this theoretical link between IU and PTS, only a small number of studies have investigated IU as a predictor of PTS symptom severity. The purpose of the current study was to elaborate on these preliminary associations by directly investigating the relationship between IU, negative world assumptions, and PTS symptom severity in a nonclinical sample with heterogeneous trauma history. To our knowledge, this was the first study of its kind, examining the relationship between IU and PTSD using the *DSM-5* (APA, 2013) symptom clusters of PTSD.

First, we hypothesized IU and more negative world assumptions would directly relate to PTS symptom severity. Second, we hypothesized cognitive variables would account for more variation in PTS symptom severity than would event characteristics, such as the number of traumas endorsed and characteristics of the worst event, including injury severity, whether it satisfied Criterion A, and event type (interpersonal or noninterpersonal). Third, we expected to see *DSM-5* symptom clusters affected to varying degrees and specifically that the negative alterations in cogni-

tive style symptom cluster would be most strongly related to IU and negative world assumptions. Finally, we examined inhibitory and prospective IU separately and expected to see results in line with Fetzner et al. (2013)'s results. Specifically, we expected inhibitory IU would significantly predict PTS symptom severity, whereas prospective IU would not.

Method

Participants

Participants were students 18 years of age or older at a southern university. The sample size for this study was originally 215, but one participant did not indicate a worst event and was therefore excluded from all analyses. The remaining participants were 44 men and 170 women. Most participants were Caucasian (57%), followed by African-American (36%), or "other" as self-disclosed by participants (7%). The mean age was 20.4 (SD = 4.86), with a range of 18 to over 50. The majority of the participants were between the ages of 18 to 21 years (86.4%, n =185).

Measures

Demographic Questionnaire. The demographic questionnaire was created by the primary investigator of this study and contains items that assess age, sex, and race. Students wrote in their age and sex. The race item only contained three items, "White/Caucasian," "Black/African-American," and "Other," to protect the identity of students with ethnicities that are less represented at the university in which the study was conducted.

Traumatic Stress Schedule (TSS). The TSS (Norris, 1990) is a ten-item questionnaire that instructs respondents to report exposure to each of nine event categories and indicate which event was the "worst." These event categories include: a) robbery/mugging, b) physical assault, c) forced/unwanted sexual activity, d) sudden loss of a loved one, e) a serious fire, f) injury or property damage as the result of a natural/human made disaster, g) serious motor vehicle accident, h) witnessed exposure to the serious injury or death of another, and i) serious injury due to non-motor vehicle accident. The tenth item allowed for open-ended report of any event not falling within the designated

event categories. For experienced events, the respondent was prompted to report further on the basis of five event descriptors, including: a) frequency; b) age at first occurrence; c) fear (1 = *not at all*, 7 = *extremely*); d) physical injury (1 = *not at all*, 7 = *extremely*); and e) distress (1 = *not at all*, 7 = *extremely*).

Intolerance of Uncertainty Scale (IUS). The IUS (Freeston, Rheaume, Letarte, Dugas, & Ladouceur, 1994) has 27 items which together measure overall cognitive, emotional, and behavioral aversion to uncertainty in day-to-day life. The statements on the IUS, such as "It's unfair not having any guarantees in life," are used to determine the degree that a participant is able to accept ambiguity. Respondents rate their endorsement of each item on a Likert-type scale (1 = *not at all representative of me* and 5 = *completely representative of me*). Higher scores reflect greater intolerance of uncertainty. The English version of the IUS was shown to be highly internally consistent (Cronbach's α = 0.88 - 0.94) and reliable over five weeks (r = 0.74; Buhr & Dugas, 2002). On the other hand, further analyses of the measure indicated substantial redundancy across items in large samples (Norton, 2005) and statistical weakness of the four and five factor models intended during development of the original version (Carleton et al., 2007). Studies such as these prompted reduction and refinement of the scale to a shortened 12-item form (IUS-12). The IUS-12 was found to be highly internally consistent (α = .91) and can be broken down into two subscales of Prospective IU (α = .85) and Inhibitory IU (α = .85). For the purpose of our study, we utilized the original 27-item IUS total score to enable comparison with other studies. Because all items on the IUS-12 were taken directly from the original version, we were also able to utilize IUS-12 prospective and inhibitory factor scores as well.

World Assumption Scale (WAS). The WAS (Janoff-Bulman, 1989) is a 32-item questionnaire measuring respondents' assumptions concerning themselves, others, and the world in general. Items assess beliefs about self-worth (e.g., "I have a low opinion of myself), the benevolence of the world (e.g., "Human nature is basically good"), and the meaningfulness of the world (e.g., "In general, life is mostly a gamble"). Each item is meas-

ured on a 6-point Likert-type scale where respondents endorse agreement with a given statement (1 = *strongly agree*, 6 = *strongly disagree*). Overall reliability has been reported as acceptable (α = 86; Janoff-Bulman, 1989).

Posttraumatic Stress Disorder Checklist-Civilian (PCL-C). The PCL-C (Weathers, Litz, Herman, Huska, & Keane, 1993) is a 17-item questionnaire that assesses posttraumatic stress symptoms over a time interval of one month. Respondents report the extent to which they were disturbed by the given symptom (e.g., "trouble falling or staying asleep") on a Likert-type 5-point scale anchored by 1 = *not at all* and 5 = *extremely*. When items are summed, a range of scores from 17 to 85 is possible. Higher scores suggest more severe PTS symptoms. The original PCL-C is comprised of three subcategories of re-experiencing, avoidance, and hyperarousal symptoms corresponding to the symptom categories of PTSD as found in the *DSM-IV* (APA, 1994). Symptom clusters changed in the *DSM-5* (APA, 2013), so we divided the scale into four sub-measures corresponding to the symptom clusters in the *DSM-5* (see Appendix). These were re-experiencing (5 items), avoidance (2 items), negative alterations in cognitive style (5 items), and hyper-arousal (5 items). We implemented a principle components factor analysis using Kaiser's rule (eigenvalues > 1; Kaiser, 1961), Promax oblique rotation method, and Catell's scree test (Catell, 1966). The analysis resulted in a suggested four-factor solution, which accounted for 61% of variability and demonstrated a Kaiser-Meyer Olkin Measure of 0.87 and a Barlett's sphericity test Chi-Square of 1574.07 (p < .000). Internal consistency of each subscale was acceptable (α > .75 for all sub-measures).

Weathers et al. (1993) report the PCL-C has good psychometric properties. Scores were found to be stable over a three day time period (r = 0.96), and items were found to be internally consistent (α = 0.97). High correlations with other established measures of PTSD demonstrated high concurrent validity with related measures. Finally, they found the PCL-C scores above 50 demonstrates good diagnostic efficacy as determined by using the Structured Clinical Interview for the *DSM-IV* Axis 1 Disorders (SCID; First, Michael, Spitzer, Gibbon, & Williams, 2002) for clinical di-

agnosis of PTSD (sensitivity = .82, specificity = .83, kappa = .64).

Procedure

After receiving IRB approval for the study, data collection involved group administration of questionnaires. Participants gave informed consent prior to participation and were debriefed when they finished questionnaires. No compensation was provided, but some professors gave extra credit for research participation.

Results

Trauma Exposure

Over half of the sample (55%) reported a "worst" event satisfying the *DSM-5*'s definition of trauma (criterion A). Almost half the sample (48%, n = 103) reported TSS item 10 ("other") to be their most severe traumatic event. For clarity, events in item 10 were grouped into categories based on similarity. See Table 1 for event frequencies.

Participants endorsed an average of 2.14 event categories (range of 1 to 7, *SD* = 1.28). For events that participants endorsed as their "worst," the mean injury, fear, and distress ratings were 1.95 (*SD* = 1.71), 3.17 (*SD* = 2.30), and 6.00 (*SD* = 1.29) respectively. A majority of people (*n* = 156, 73 %) reported an interpersonal worst event.

Cognitive Variables

Intolerance of Uncertainty. Total IUS scores ranged from 31 to 114 with a mean score of 65.40 (*SD* = 21.25). Prospective IU scores varied from 7 to 34 with a mean of 18.80 (*SD* = 6.44), and mean inhibitory IU scores were slightly lower (*M* = 10.63, *SD* = 4.65) with a range of 5 to 25.

World Assumptions. Participants' total scores ranged from 72 to 166. The mean score was 119.94 (*SD* = 17.99).

Posttraumatic Stress Symptoms

Participants reported a relatively high level

Table 1. *Event Frequencies*

Trauma	TSS Event Frequency		Worst Event Frequency	
	(n)	(%)	*(n)*	(%)
Robbery	20	9.3%	7	3.3%
Assault	46	21.5%	12	5.6%
Sexual assault	37	17.3%	22	10.7%
Unexpected death of a loved one	89	41.6%	23	10.7%
Fire	6	2.8%	1	0.5%
Natural/Human made disaster	14	6.5%	1	0.5%
Motor vehicle accident	34	15.9%	8	3.7%
Other serious accident	39	18.2%	10	4.7%
Witnessing physical injury	63	29.4%	22	10.3%
Other	110	51.4%	103	48.1%
Medical death of a loved one	---		20	9.3%
Serious illness/injury of a loved one	---		12	5.6%
Indirect physical threat			8	3.7%
Health Problems	---		10	4.7%
Non-romantic interpersonal conflict	---		7	3.3%
Romantic interpersonal conflict	---		19	8.9%
Stressful life circumstance	---		16	7.5%
Severe bullying	---		5	2.3%
Severe neglect	---		2	1.0%

Note: Item number 10 on the TSS was open ended and allowed participants to report a stressful event that was not listed. Many participants reported this event to be their most severe (e.g. Index trauma). We have organized these responses into more specific categories. These reported traumas were not included in the Trauma Endorsement Frequency column because not all participants had the opportunity to report these events.

Table 2. *Regression Results for Event and Cognitive Variables Predicting PTS*

Model	Variable	b	t
Model 1 *Event Factors*	TSS Total	0.42	0.64
$F(6,198) = 4.24$, $R^2 = .13$	Criterion A	-0.93	-0.46
	Frequency	-0.09	-0.24
	Fear	0.52	1.06
	Injury	2.04**	3.24**
	Distress	1.51*	2.05*
	Interpersonal	7.36**	3.21**
Model 2 *Event and Cognitive Factors*	Block 1		
$F(8,205) = 10.02$, $R^2 = .31$	TSS Total	0.59	0.87
	Criterion A	-0.37	-0.20
	Frequency	-0.09	-1.03
	Fear	0.57	1.28
	Injury	1.81**	3.20**
	Distress	0.51	0.45
	Interpersonal	7.36**	3.21**
	Block 2		
	IUS Total	0.27**	6.53**
	WAS Total	-0.11**	-2.43**

Note: * $p < .05$, ** $p < .01$

of PTS symptoms for a non-clinical population. Using the recommended PCL-C cut-off score of 50 (Weathers et al., 1993), 23% of the sample (*n* = 59) fell into the PTSD-probable range. PCL-C total scores ranged from 17 to 73 with a mean of 37.80 (*SD* = 14.17).

Relationships among Event Factors, Cognitive Variables, and PTS Symptoms

To test our first two hypotheses that IU and more negative world assumptions would be associated with higher PTS symptoms and would account for more variation in PTS symptoms than event characteristics alone, we ran a series of hierarchical multiple regression analyses with PCL-C total scores as the dependent variable. Event characteristics were entered first (block 1) and included the number of events reported (TSS total) and factors associated with the worst event, such as

whether it satisfied criterion A (0 = no; 1 = yes); whether it was interpersonal in nature (0 = no; 1 = yes); and ratings of fear, injury, and distress associated with the event. Cognitive variables (IUS and WAS scores) were added second (block 2) to examine whether they explained PTS symptoms after accounting for the effect of event factors. To account for the increased likelihood of a Type 1 error with the use of multiple statistical tests, we elected to use a *p* value of .01 instead of .05 to determine significance. We indicated which tests satisfied the .05 criterion in the tables so results can be compared across studies, however.

Both hypotheses were supported (Table 2). The regression model that included only event characteristics (block 1) was significant and accounted for 12.6% of variation in PTS symptom severity. The regression model remained significant when cognitive variables (block 2) were en-

tered into the equation and explained 30.6% of variation in PTS symptoms. The change in R^2 was significant ($p < .001$), indicating that adding cognitive variables significantly improved the model. When all variables were added, more severe PTS symptoms were associated with higher injury ratings, worst events that were interpersonal in nature, higher IU scores, and more negative world assumptions.

To test the third hypothesis that the negative alterations in cognitions/mood symptom cluster of PTS would be most sensitive to cognitive variables, we repeated the regression analyses above with PCL-C symptom cluster scores instead of the total score. Our hypothesis was not supported. Although cognitive factors explained a larger amount of variance in the negative alterations in cognitions/ mood symptom grouping than in the re-experiencing and avoidance symptom groupings, variance in the hyper-arousal symptom grouping was best explained by the model. The model including only event characteristics was not significant ($p = .037$), and the model including both event characteristics and cognitive variables accounted for 16.0% more variation in the hyper-arousal cluster than did the model including event characteristics alone [$R^2= .26$, $F(9,203) = 7.99$, $p \neg .445$]. In addition, re-experiencing, avoidance, and negative alterations in cognitions/mood symptom clusters were also explained by the regression models including cognitive variables [re-experiencing: $R^2 = .20$, $F(9,203) = 5.53$, $p < .001$; avoidance: $R^2= .20$, $F(9,203) = 5.52$, $p < .001$; negative alterations in cognitions/mood: $R^2= .24$, $F(9,203) = 6.97$, $p < .001$].

Relationships between Prospective and Inhibitory IU and PTS Symptoms

To examine the fourth hypothesis that inhibitory IU (and not prospective IU) would predict PTS symptom severity, regression analyses were repeated using the subscales scores for inhibitory IU and prospective IU in place of the total IU score. The regression model was significant [$R^2=.32$, $F(9,195)=10.17$, $p < .001$], but our hypothesis was not supported. In fact, our results indicated a trend directly opposite to that which we predicted. After

Table 3. *Regression results for PCL-C symptom clusters predicted by IUS subscales*

PCL-C subscale	IUS Subscale	*b*	*t*
PCL-C Total $F(9,195) = 10.17$, $R^2 = .32$, $p < .001$	Prospective IUS	0.69**	3.80
	Inhibitory IUS	0.34	1.38
PCL-C-E Hyper-arousal $F(9,195) = 7.07$, $R^2 = .25$, $p < .001$	Prospective IUS	0.22**	3.11
	Inhibitory IUS	0.12	1.31
PCL-C-D Negative Alterations in Cognitive Style $F(9,195) = 8.05$, $R^2=.25$, $p < .001$	Prospective IUS	0.23**	3.69
	Inhibitory IUS	0.08	0.93
PCL-C-C Avoidance $F(9,195) = 6.24$, $R^2=.20$, $p < .001$	Prospective IUS	0.26**	3.28
	Inhibitory IUS	0.12	0.53
PCL-C-B Re-experiencing $F(9,194) = 6.07$, $R^2=.20$, $p < .001$	Prospective IUS	0.13	1.66
	Inhibitory IUS	0.11	1.38

Note: * $p < .05$, ** $p < .01$

controlling for event characteristics and WAS scores, prospective IU was found to significantly predict PCL-C scores ($p < .001$), whereas inhibitory IU scores did not ($p = .17$). We repeated these analyses for each of the PTS subscales (Table 3).

Discussion

Our results support our first hypothesis which expected associations among IUS, WAS, and PCL-C scores. PTS symptoms were associated with more uncertainty intolerant cognitive styles and negative world assumptions. These findings add to mounting evidence that PTS symptoms are related to dispositions concerning the world and a person's cognitive style (e.g., Fetzner et al., 2013; Janoff-Bulman, 1989).

We also compared the relative contribution of event and cognitive characteristics to total PTS symptom severity. Our findings supported our hypotheses, which expected cognitive variables to explain variation in PCL-C score above and beyond the influence of event characteristics. In fact, we found the regression model including both event characteristics and cognitive variables accounted for more than twice as much variation in PTS symptom severity as did the model accounting for event characteristics alone. These data are consistent with previous studies that find cognitions to be strong predictors of PTS symptoms (e.g., Ehlers & Clark, 2000; Foa & Rothbaum, 1998; Hayes et al., 2004) and lend rationale to the relatively low rates of PTSD in the general population despite high reported rates of exposure to traumatic events.

We examined the unique contribution of cognitive factors to each of the *DSM-5* symptom clusters. Interestingly, in addition to the negative alterations in cognitions/mood symptom cluster, the re-experiencing, avoidance, and hyper-arousal symptom clusters were all significantly predicted by our model. Our model accounted for the largest amount of variance in hyper-arousal symptoms. These results disagree with our hypothesis, which predicted symptoms involving changes in cognitive style to be most strongly predicted by cognitive variables. These data could serve as preliminary evidence as to the psychopathological scope of the mechanism(s) underlying the role of cognitive flexibility in PTS symptom risk and resilience

and could prove therapeutically relevant in selecting the most effective treatment strategy for addressing variable PTS symptom presentation as per the DSM-5 symptom clusters.

Finally, we examined the relative contribution of IUS factor scores to PCL-C total and symptom cluster scores. Our hypothesis that inhibitory IU (i.e., concern about the inability to act in uncertain situations) would more strongly predict PTS symptom severity than prospective IU (i.e., concern that uncertainty is a future threat) was not supported. In fact, we found PCL-C total and all PCL-C symptom cluster subscale scores, with the exception of re-experiencing, were significantly predicted by prospective, but not inhibitory IU. Interestingly, these findings are directly incongruent with those from the Fetzner et al. (2013) study finding PTS symptoms were significantly predicted by inhibitory, but not prospective, IU scores.

In considering the discordant nature of the results related to the fourth hypothesis, there are theoretically viable explanations that might provide further insight into the role of IU and cognitive flexibility in PTS symptom risk and resilience. First, Fetzner et al.'s (2013) study differed from the current study in their use of a sampling method that actively recruited individuals struggling with anxiety, as well as the inclusion of an anxiety measure in step 1 of their 2-step regression model. Considering inhibitory IU has been found to predict anxiety in clinical samples (Boelen et al., 2010), it is possible these fundamental differences in methodology might explain the discrepancy between findings. Second, an emphasis on proactivity and future focus could be somewhat exaggerated in undergraduate students relative to a community sample. Basevitz, Pushkar, Chaikelson, Conway, and Dalton (2008) found older adults reported less worry than younger adults. For college students, concerns about uncertainty might be more likely to manifest in the form of concerns about one's future (prospective IU) than as an inability to act or function as an immediate consequence (inhibitory IU).

Future research should address limitations in the current study. A cross-sectional study cannot determine the direction of the relationship between cognitive variables and PTS symptoms. Longitudinal designs could examine whether

world assumptions and IU change when a person develops PTS symptoms or whether these cognitive variables serve as pre-existing risk and resilience factors that influence a person's response to trauma. Future research might also clarify the relationship between PTS symptoms and inhibitory and prospective IU by examining these variables in different samples to determine if age or education moderates the relationship between IU and PTS symptoms. Finally, studies could examine brain regions associated with prospective and inhibitory IU. It would be interesting to examine whether age-related differences in future-related anxiety (see Basevitz et al., 2008) correspond to functioning in brain regions that have been linked to anxiety, such as the anterior cingulate cortex (Milad et al., 2007), the dorsolateral prefrontal cortex (Cohen et al., 2004), and the amygdala (Hull, 2002).

This design also benefits from several strengths. It draws from a mixed gender, non-clinical population with heterogeneous trauma history and is likely to be reasonably generalizable to the population. It is also the first to characterize the influence of IU on PTS symptom severity using the *DSM-5* symptom clusters in a non-clinical sample.

Our results support the role of cognitive flexibility in PTS symptom risk and resilience and serve to further clarify the nature of the mechanisms underlying the relationships among PTS symptoms, IU, and beliefs about the world and self. This study presents data that directly contradict findings from one of the few related previous studies and might emphasize differences in the specific nature of the presence of IU as a function of anxiety levels and/or demographic variables such as education level, socioeconomic level, and age. Finally, our results add to a growing body of research that highlights the role of IU in a variety of anxiety and mood disorders (e.g., Andrews & Boirkovec, 1998; Dugas et al., 2004). Given high comorbidity between psychological disorders (Kessler et al., 1995), the identification of common risk factors could lead to targeted prevention and intervention strategies that focus on changing thinking patterns that are the most salient predictors of multiple forms of psychopathology. This study suggests that IU might be one such relevant target to increase resilience.

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Appendix

PCL-C symptom cluster	PCL-C Full Length: corresponding item number
PCL-C B *Re-experiencing*	1. Repeated disturbing *memories, thoughts, or images* of a stressful experience?
	2. Repeated disturbing *dreams* of a stressful experience?
	3. Suddenly *acting or feeling* as if a stressful experience *were happening again* (as if you were reliving it)?
	4. Feeling *very upset* when *something reminded you* of a stressful experience?
	5. Having *physical reactions* (e.g., heart pounding, trouble breathing, sweating) when *something reminded* you of a stressful experience?
PLC-C C *Avoidance*	6. Avoiding *thinking about* or *talking about* a stressful experience or avoiding *having feelings* related to it?
	7. Avoiding *activities* or *situations* because *they reminded you* of a stressful experience?
PCL-C D *Negative alterations in cognitions/mood*	8. Trouble *remembering important parts* of a stressful experience?
	9. L*oss of interest* in activities you used to enjoy?
	10. Feeling *distant* or *cut off* from other people?
	11. Feeling *emotionally numb* or being unable to have loving feelings for those close to you?
	12. Feeling as if you *future* will somehow be *cut short?*
PCL-C E *Hyper-arousal*	13. Trouble *falling* or *staying asleep*?
	14. Feeling *irritable* or having *angry outbursts*?
	15. Having difficulty concentrating?
	16. Being "*super-alert"* or watchful or on guard?
	17. Feeling *jumpy* or easily startled?

Outsiders' Perceptions and Stigmas for Parents with Children Diagnosed with ADHD

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Abstract—This study explored observers' judgments and stigmas placed on parents when their children did (or did not) have a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD). Specifically, participants read a vignette about a child with (experimental group) or without (control group) the diagnosis of ADHD who was displaying negative behaviors in front of his parents. Participants, who were parents themselves recruited from the community, judged themselves as the parents of the fictitious child in terms of perceived parental stress, parental satisfaction, sense of competence, and locus of control. Results showed that parents in the experimental group were perceived to have significantly higher stress levels than the control group (p = .003) and marginally higher levels of perceived parental competence (p = .085). Surprisingly, there were no significant differences in perception between parents of children with or without an ADHD diagnosis for either locus of control (p > .05) or parental satisfaction (p > .05). Implications for the social stigmas associated with mental health labels and for parents who have children with mental health issues are discussed, as well as limitations and future research directions.

Keywords: ADHD, stigma, parental stress, parental satisfaction, locus of control

"When a child is born with a handicap or a serious developmental disorder, or develops a problem, parents are expected to cope. When parents do not handle situations well or when the behavior of their child is out of control, parents are seen as having done a poor job or as having failed."

-Richard Abidin

Stereotypes, judgments of others, and social stigmas are problems that are seemingly ubiquitous throughout human history. It appears to be a basic instinct of our species to observe and judge others' behaviors and social categories, even when those behaviors and categories are not in the target's control, such as race (e.g., Priest, Paradies, Trenerry, Truong, Karlsen, & Kelly, 2013) or disability status (e.g., Corrigan, 2014). Another example of an uncontrollable social category that carries negative judgments, stereotypes, and stigmas is a diagnostic label in the field of mental health (Hinshaw & Stier, 2008; Jones, Farina, Hastorf, Markus, & Miller, 1984). In one review of stigmas for mental disorders, the authors wrote, "Individuals with mental illness receive hard stigmatization, resulting in decreased life opportunities and a loss of independent functioning over and above the impairments related to mental disorders themselves" (Hinshaw & Stier, p. 367). Therefore, it is not surprising that the negative effects of social stigmas can be profound (Heatherton, Kleck, Hebl, & Hull, 2000; Jussim, Palumbo, Chatman, Madon, & Smith, 2000).

Although there is a large body of research on the stigmas that observers place on individuals who have mental health issues, there is much less research on stigmas placed on parents of children who have mental disorders or disabilities. However, this topic is important due to the large number of children with such diagnoses and because of the additional stress such social judgments may put on those children's parents. When children "misbehave" or display behaviors in public that are

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*Wind Goodfriend served as Faculty Sponsor.

considered unacceptable, often the parents are blamed for being either absent/apathetic or for lacking discipline (Leas & Mellor, 2000; Mehta & Bussing, 2013). One childhood diagnosis that is particularly salient is Attention Deficit Hyperactivity Disorder (ADHD). ADHD is prevalent among children, especially in boys when compared to girls. According to the Centers for Disease Control and Prevention (CDC, 2012), 5.2 million U.S. children between the ages of 3 and 17 have been diagnosed with ADHD. Thus, though research on social stigmas or judgments of mental health issues is common, and though the diagnosis of ADHD is also common, there is very little research to date regarding the intersection of these two areas of psychology. The goal of the current study was therefore to explore outsiders' judgments of parents who have children diagnosed with ADHD.

Becoming a parent is typically seen as difficult, but extremely rewarding (Eibach & Mock, 2011). Whereas the challenges of raising a normative child are already daunting, raising a child with a disability (Hayes & Watson, 2013) or mental disorder such as ADHD, might be even greater (Abidin, 1990; Klansen, 2000; Mash and Johnston, 1990). Parents are expected to control their children's behavior, especially in public, and when it is not controlled, they can be judged and stigmatized as being poor parents (Abidin, 1990; Klansen, 2000). This social pressure or negative judgment can add to the stress many parents feel. Thus, a fuller understanding of the intricacies of this particular type of social stigma is important. The current study focused on four particular variables that might be the subject of outsiders' perceptions of parents with children diagnosed with ADHD: perceived parental stress, perceived parental satisfaction, perceived parental sense of competency, and perceived parental locus of control. Each of these constructs is briefly reviewed in the next section.

Perceived Parental Stress

In order to understand perceived parental stress, it is first essential to understand what discerns parental stress from stress in general. Stress has been defined as when individuals feel or see themselves becoming overwhelmed by outside forces, such as demands forced on them or intrusions to their comfort levels or well-being

(Lazarus, 1966). In the early development of defining parental stress, parenthood itself was seen as a stressful event due to the transition of going from no offspring to rearing a child, when couples had to rearrange their life and roles (Dyer, 1963). Later, parental stress was described as perceived supplementary tension that distresses the family unit's stability (Lazarus, 1966). The definition of parental stress was refined again with the development of Abidin's Parental Stress Index (PSI), which allowed psychologists to assess specific types of stress at a clinical level in parents (Mouton & Tuma, 1988). More recently, Mash and Johnston (1990) specified the stress as conflict within parent-child relationships and defined parental stress as frequent levels of intense negative interactions based on events including: "characteristics of environment, characteristics of the child, and characteristics of the parent" (p. 313).

Specifically related to the current study, past researchers have found that parents of children with ADHD or with relevant behaviors (e.g., hyperactivity only) experience vast elevated levels of daily parenting stresses (Abidin, 1990; Klansen, 2000; Mash & Johnston, 1990; Walen, Odgers, Reed, & Henker, 2011). However, the stress of parenting any child could certainly increase if the parent believes that he or she is being negatively judged by observers in public places, such as a grocery store or playground. Ironically, one of the negative stigmas that could be put on parents of children diagnosed with ADHD is the assumption from others that they are, indeed, experiencing high levels of stress. In other words, the diagnostic label of ADHD and stereotypes placed on parents could create an atmosphere of a self-fulfilling prophecy within the child-parent relationship:

> *A self-fulfilling prophecy is an erroneous belief that leads to its own fulfillment. A self-fulfilling prophecy consists of a sequence of three steps. First, one person (the perceiver) must develop an inaccurate belief about another person (the target). Second, the perceiver must treat the target in a manner that is consistent with the inaccurate belief. Third, the target must respond to the perceiver's treatment by confirming the originally inaccurate belief* (Madon, Guyll, & Spoth, 6448, p. 459).

It is therefore of interest to know the extent to which observers assume parents of children diagnosed with ADHD experience elevated levels of stress, compared to children not labeled with an ADHD diagnosis. Thus, it was expected that participants would report parents in the vignette describing a child labeled with ADHD would have higher levels of parental stress, compared to parents in the vignette describing a child with no label.

Perceived Parental Satisfaction and Sense of Competency

Similar to perceived parental stress might be the idea of perceived parental satisfaction or competency. Outsiders might believe that parents of children diagnosed with ADHD are less satisfied with their parenting experience or with the children themselves, compared to parents of non-diagnosed children. Again, the same type of judgment might be put on parents from observers who appear to be negatively attributing poor child behaviors to poor parenting skills. For example, one study explored the experiences of parents with hyperactive children (Klasen, 2000). Here, parents discussed being judged by others (e.g., "Why can't she control that child?"), dismissive behavior by others, and nagging doubts about being a poor parent (e.g., "A lot of the time you think it's something you have done or not done;" Klasen, 2000, p. 337).

In other words, actual parents of children with ADHD feared that others were negatively judging their satisfaction and parenting competence. However, very little research has actually explored whether outsiders are, indeed, making this type of judgment. For the same reasons it is important to understand outsiders' assumptions about stress in parents of children with ADHD, it is valuable to know whether outsiders place negative assumptions and stigmas regarding other parents' sense of satisfaction and competency. Thus, it was also expected that in the current study, participants would report that parents in the vignette describing a child labeled with ADHD would have less parental satisfaction and a lower sense of parental competence, compared to parents in the vignette describing a child with no label.

Perceived Locus of Control

Another relevant factor might be perceptions of parents' locus of control. Locus of control generally refers to whether one believes that life outcomes are consequences of an individual's choices, behaviors, and drive (referred to as an internal locus) or the consequences of situations, luck, or fate—in other words, things out of an individual's control (referred to as an external locus; Rotter, 1966). Despite the fact that research about perceived locus of control and ADHD is, again, lacking, some studies have explored the role of locus of control on parenting in general. For example, one study relevant to the current project compared the amount of stress, locus of control, and role satisfaction among mothers who were clinically referred and sought professional help for their non-normative children (Mouton & Tuma, 1988). Results suggested parents with an external locus are more likely to see their children's behavior as out of their control, whereas those parents with an internal locus felt responsible for their children's behavior problems (Mouton & Tuma, 1988; Östberg & Hagekull, 2013).

The study above used participants who were actually parents of children with clinical issues. The current study, though, focused on whether outside observers made assumptions about locus of control in parents with children diagnosed with ADHD. For example, if a child is misbehaving in public, would an observer assume that the child's parent has an external locus of control? This assumption might provide an explanation for the child's socially unacceptable behavior, if the observer assumes that the child's parent thinks the behavior is not directly manageable or controllable (due to the external locus of control). If this assumption by the observer is occurring, it might provide further insight into the social stigmas or stereotypes placed on parents of children diagnosed with ADHD. In this study, it was expected that participants would report the parent in the vignette describing a child labeled with ADHD would be more likely to have an external locus of control, compared to parents in the vignette describing a child with no label.

Summary of Hypotheses

Based on the literature reviewed above, this

study's hypotheses were that when participants put themselves in the role of a parent with a misbehaving child, participants in the ADHD diagnosis group would report perceptions of: a) higher levels of stress, b) lower levels of parental satisfaction, c) lower parental sense of competence, and d) higher levels of external locus of control, all compared to participants who read about a parent with a child who exhibited the exact same behaviors, but did not have the diagnostic label of ADHD.

Even though the purpose of the study was to explore outsiders' assumptions, judgments, and stigmas about parents, the authors believed that the best sample of participants would be individuals who were parents themselves. In this way, the sample of "judges" would be more similar to the fictional targets, and thus would be more likely to

provide data relevant to the real world, when parents interact with each other and form actual social attributions and attitudes.

Method

Participants

This study included 42 parents from a Midwestern community between the ages of 28 and 60 (M = 43.30, SD = 9.03). A summary of all demographic information gathered is available in Table 1. As seen in the table, participants were 22 men (52.4%) and 20 women (47.6%); ethnicity was 88.1% White/Caucasian, 9.5% Hispanic/Latino, and 2.4% African-American/Black. Parents' self-reported current relationship status was 83.3% married or cohabiting, 7.1% single, 4.8% divorced or widowed, 2.4% in an exclusive relation-

Table 1: *Demographic Information*

	%	*M*	*SD*
Sex of Parent			
Male	52.4	--	--
Female	47.6	--	--
Age	--	43.3	9.03
Race/Ethnicity			
Caucasian/White	88.1	--	--
Hispanic/Latino	9.52	--	--
African American	2.4	--	--
Relationship Status			
Single	7.1	--	--
Exclusive Relationship	2.4	--	--
Married/Cohabitating	83.3	--	--
Divorced/Widowed	4.8	--	--
Other	2.4	--	--
Children in Home			
Biological	90.9	1.90	1.19
Stepchildren	0.03	0.07	0.47
Adopted	0.06	0.12	0.50
Foster	0.00	0.00	0.00
Number of siblings of parents		2.69	1.72

Note. Percentages of the sample are provided for categorical variables, and means and SDs are provided for continuous variables. For the "children in home" set of rows, the first column (%) indicates the % of the sample with one or more child in that category living at home. This number adds to less than 100% because a few participants indicated that they had children, but that those children did not live at home.

ship, and 2.4% "other." The parents in this sample reported having an average of 2.17 children (*SD* = 1.16) currently living in their households.

Independent Variable: Diagnosis Manipulation in Fictional Vignettes

Packets of materials contained a vignette describing a scenario with a fictional child named John (see Appendix). Participants were randomly assigned to either the experimental packet, containing a diagnosis of ADHD for John, or the control packet that did not contain a diagnosis. The difference in the scenarios appeared in the opening sentence of the vignette. In the experimental packet, the line read: "John, who has attention deficit hyperactivity disorder (ADHD), and you are headed to the children's park about a block from your house," whereas in the control packet the first line read, "You and John are headed to the children's park about a block from your house." Both scenarios then described John displaying negative behaviors such as difficulty waiting patiently in line and climbing on the slide playground equipment without thinking of the consequences. The behaviors were written based on the standard symptoms of ADHD listed in the DSM-5 (American Psychiatric Association, 2013).

Dependent Variables

The participants completed a questionnaire including scales assessing each dependent variable (see below for details). Importantly, the directions for all of these surveys explicitly asked the participants to complete them from the perspective of the parent in the vignette. Specifically, before the scales appeared in the packet, the instructions read, "Keeping in mind the scenario with you and your child John, answer each item as if you were truly John's parent" (bold in original instructions). Each scale is described in detail below.

Perceived parental stress. The Parental Stress Scale is an 18 item self-report questionnaire intended to evaluate the positive and negative themes of parenting and its rewards (Berry & Jones, 1995). The items in this scale cover emotional benefits to personal benefits and the opportunity costs of having children. An example item from the scale includes, "I am overwhelmed by the responsibility of being a parent." Participants rated each

question on a 5-point Likert scale ranging from 1 (*strongly agree*) to 5 (strongly disagree) based upon how they felt as the parent of the fictional child in the vignette. A total of 8 positive items were reverse-scored, then all items were summed to obtain a total score, ranging from 18-90. Higher scores reflect higher levels of parental stress. The overall mean of this sample was 63.48 (*SD* = 12.22). Internal consistency for this scale was high, $\alpha = 0.92$.

Perceived parental satisfaction. The Parental Satisfaction Scale is a 30 item self-report questionnaire intended to assess parental satisfaction levels (Halverson & Duke, 2001). Perceived levels of satisfaction were measured by including the parental themes of the pleasures, the importance, and burdens of parenting. Example items include, "The rewards for being a parent easily outweigh the effort and hard work," and, "Watching children grow and develop is especially satisfying." Participants rated each question on a 7-point Likert scale ranging from 1 (*Always Disagree*) to 7 (*Always Agree*) based upon how they felt as the parent of the fictional child in the vignette. Item were summed to obtain a total score. The possible range of scores was from 30 to 210, with higher scores indicating greater parental satisfaction. The overall mean of this sample was 140.51 (*SD* = 18.09), and internal consistency was good, $\alpha = 0.79$.

Perceived parental sense of competency. The Parental Sense of Competency Scale is a 17 item self-report questionnaire intended to measure parents' beliefs, values, and perceived skills (Mash & Johnston, 1989). The items in this scale cover satisfaction (the sense of parenting frustrations, anxiety, and motivation) and efficacy (including competence, the ability to solve problems, and aptitude of the parenting role). An example item from scale measuring satisfaction is, "If being a mother/father of a child were only more interesting, I would be motivated to do a better job as a parent," whereas an item measuring efficacy is, "If anyone can find the answer to what is troubling my child, I am the one." Participants rated each question on a 5-point Likert scale ranging from 1 (*Strongly Agree*) to 5 (*Strongly Disagree*) based upon how they felt as the parent of the fictional child in the vignette. Some items were reverse-coded, then all items were summed to form a composite; higher

scores indicate higher degrees of perceived competency. The overall mean of this sample was 56.39 (*SD* = 9.74), and internal consistency was good, α = 0.84.

Perceived locus of control. The Locus of Control Scale is a 23 item self-report questionnaire intended to evaluate an individual's perception of control or lack of control over their environment (Rotter, 1966). Some example items from this scale include: "Many of the unhappy things in people's lives are partly due to bad luck," and, "People's misfortunes result from the mistakes they make." Each item presents a set of two statements; participants choose one statement indicating either internal or external locus of control. After half of the items are reverse-scored, items are summed to create a composite score, such that higher scores indicate more of an external locus of control (whereas lower numbers indicate more of an internal locus). The possible range of scores was 0 to 23; the overall mean of this sample was 8.64 (*SD* = 3.50).

Procedure

Participants were recruited via announcements, emails, and fliers in a rural Midwestern community, asking for parents to volunteer. People who were interested in the study were given the packet and a self-addressed, stamped return envelope. The participants first read a statement explaining that by completing and returning the packet, they were providing consent. The first page of the questionnaire asked them to complete the demographic questions described above. Participants then read one of the vignettes (randomly assigned) and completed the dependent measures as if they were the parent in the scenario. Upon completion, the participants read a statement

thanking them for their time. The participants then sealed the provided envelope and mailed back the questionnaire. A total of 80 surveys were distributed yet only 42 were returned, translating into a response rate of 53% of those who initially agreed to participate.

Results

Although no hypotheses were made regarding correlations among the dependent variables, it was reasonable to expect that many of the constructs measured in the current study would be significantly correlated with each other. A correlation matrix of all dependent variables is provided in Table 2. As seen, all variables were significantly correlated with each (at $p < .05$), except for locus of control and perceived parental satisfaction ($p > .05$). These associations are generally not surprising; for example, perceived parental competency and parental satisfaction have a strong positive correlation ($r = .67$, $p < .001$). However, the significant positive correlation between perceived parental stress and satisfaction was surprising, $r = .54$, $p < .001$.

Table 3 shows means, standard deviations, t-values, and p-values for comparisons of the experimental versus control group for each of the dependent variables. Hypothesis 1 expected that parents of the child with ADHD would be perceived as having higher levels of stress than parents of the child with no label. As expected, parents in the ADHD group reported higher levels of perceived stress ($M = 69.40$, $SD > 54.$[3] 5) than parents of the child without the diagnosis ($M = 57.60$, $SD = 13.54$), and the difference was significant, $t(40) = -3.11$, $p = .003$.

For Hypothesis 2, parents in the control group reported slightly lower perceived parental

Table 2: *Correlations Among Dependent Variables*

Variables	1	2	3	4
1. Locus of Control	--	-.14 .382	-.35 .022	-.45 .003
2. Parental Satisfaction	--	--	.54 < .001	.67 < .001
3. Parental Stress	--	--	--	.73 < .001
4. Parental Sense of Competence	--	--	--	--

Note. Degrees of Freedom for all correlations > 86

Table 3. *All t-tests of Dependent Variables*

| | Control Condition | | ADHD Condition | | | |
	M	*SD*	*M*	*SD*	*t*	*p*
Stress	57.60	13.54	69.40	10.91	-3.11	.0034
Satisfaction	137.70	17.70	143.10	18.45	-0.97	.3400
Sense of Competence	53.75	10.31	59.04	9.18	1.76	.0859
Locus of Control	9.10	3.24	8.18	3.76	0.84	.4042

Note. Degrees of freedom for all correlations > 86

satisfaction (M = 137.70, SD = 17.70) compared to the experimental group (M = 143.10, SD = 18.45), but this difference was not statistically significant, t(40) = -0.97, $p > .05$. When comparing perceived parental sense of competence for Hypothesis 3, parents who were given the child's diagnosis perceived a slightly higher sense of competence (M = 59.04, SD = 9.18) compared to parents not given a diagnosis (M = 53.75, SD = 10.31); however, this difference was only marginally significant, t(40) = -1.76, $p > .05$. Finally, the two groups were compared on perceived locus of control for Hypothesis 4. Surprisingly, parents in the control group perceived slightly higher levels of external locus (M = 9.10, SD = 3.24) compared to parents in the experimental group (M = 8.18, SD = 3.76). This difference was in the opposite direction of the hypothesis, but was not significant, t(40) = 0.84, $p > .05$. In sum, only Hypothesis 1 was supported.

Discussion

Even though most of the results for the hypothesis testing did not reach significance, Hypothesis 1 was supported. This analysis supported the idea that when parents read a fictional vignette in which a child misbehaves in public, and when those parents are asked to put themselves in the role of that child's mother or father, perceptions of parental stress change depending on whether the child has an ADHD diagnosis. Even when the actual child's behaviors were exactly the same in the two experimental conditions, simply reading about an ADHD diagnosis increased perceived levels of parental stress. Perhaps the parents in our sample were correct to make this assumption, as past research has found that, indeed, raising a child with

ADHD is more stressful than a child without an ADHD diagnosis (Abidin, 1990; Klansen, 2000; Mash & Johnston, 1990).

Particularly important to this study was that the addition of a single phrase (the diagnosis) in the experimental condition created a sense of extra stress projected onto the fictional parents. The child in the vignette did indeed have ADHD symptoms based from the DSM-5 (American Psychiatric Association, 2013), but the heightened sense of stress or "extra" perceived stress only appeared when the diagnosis was presented. In short, the stigma of a diagnostic label itself created the perception of extra stress.

This labelling effect is potentially problematic for several reasons. If parents of diagnosed children are already experiencing elevated levels of stress, being judged or stigmatized by observers may only increase the deleterious effects of this stress, compounding any negative emotional or physical effects. In this way, the stress projected on these parents by outsiders may become a self-fulfilling prophesy, as reviewed earlier (Madon et al., 2004). This assumption that parents of children with an ADHD diagnosis have increased stress may also work to maintain negative stereotypes about the condition of ADHD, the children themselves, or even connotations about mental health diagnoses in general. On the other hand, perhaps perceptions of increased stress in some parents may be a good thing. If observers of parents of children with an ADHD diagnosis are aware of the diagnosis, it is possible that perceived increased stress in the parents might lead to empathy for those parents, and thus increased patience and understanding. Future research on these possible outcomes could be ex-

plored.

Limitations and Future Research

Certainly, a limitation of the current study was the brevity of the demographics survey. Because the participants were adult volunteers from the local community, the authors of this study attempted to keep the questionnaire as short as possible, to increase convenience of completion and (hopefully) response rates. However, the unfortunate consequence is that we were lacking in many additional pieces of information that may have been relevant to the perceptions that our participants reported. For example, the survey did not ask whether the participants themselves had children with any mental health diagnoses, such as ADHD. An interesting future study might explore whether personal experience with children diagnosed with ADHD changes one's perception of other parents with children diagnosed with ADHD, further investigating the possibility of increased empathy.

Additional limitations come from the vignettes created by the authors. First, the vignettes focused only on ADHD, a single type of childhood disorder. Certainly, future research could explore other disorders that may lead to very different results, such as childhood depression or conduct disorder. One variation might be to simply say that the fictional child has "mental health problems," and see what stereotypes this global label could evoke. The vignette also only included a male child, and though age was not specified, the "time out" type of punishment described in the scenario implied a very young age. Thus, different experimental conditions could vary the child's sex or age, or other interesting demographics, to see whether this information also had an impact in perceptions of the parents' experience. Finally, the vignettes described very specific behaviors that could be seen as relatively contrived by the participants, who were parents themselves. Additional pilot testing of different types of vignettes would certainly increase the internal validity of the study, and would help clarify what conclusions could safely be made.

It is important to note that only one of the four hypotheses was supported. This leaves several questions regarding why the other hypotheses were non-significant. Is there something about per-

ceived parental stress that makes it different from the other constructs measured here? The strongly significant positive correlations between perceived parental stress and both perceived parental satisfaction and competence highlight questions about why one of these variables significantly changed based on experimental condition, whereas the others did not. A limitation of the study may have been selection of the particular constructs or measures. Future research might include questions that refer more specifically to aspects of the fictional vignette. This specificity in the questions could also be a good way to remind participants that they were asked to answer the questions "as if" they were the fictional child's parent, and not based on their own, personal parenting experiences. Finally, it is possible that the constructs included here that did not change based on condition are hardy enough that they are not easily manipulated. Additional studies could explore all of these ideas by refining the procedure.

Strengths and Conclusions

One strength of this study was the sample; participants were parents with a wide age range who were recruited from a small, rural town in the heart of the Midwest. By having actual parents report perceptions and judgments of the fictional parent from the vignette, the study may have had increased external validity (compared to if college students had been used). Another strength was that the study expanded past research. Despite the fact many previous studies have investigated stereotypes or stigmas in general or have asked parents of children diagnosed with ADHD to report on their experiences, very little research has focused on the intersection of these two topics in psychology. Thus, this study has provided one small step toward bridging the gap between these two disparate areas of the field. Finally, although the study itself admittedly had many limitations, it also offers many suggestions for future research.

The results highlight the judgment that some parents may put on other parents, especially in cases of misbehaving children or when children have mental health diagnostic labels such as ADHD. With the increasing attention that both the field of psychology and popular culture have given to this particular childhood disorder in the last several

decades, studies that provide insight into the experience of the children themselves, parents of these children, or how outside observers place stigmas on either party in the family relationship are warranted. If future research can identify methods to decrease these stereotypes and stigmas, both family relationships and society at large can improve behaviors toward and perceptions of children and parents with mental health concerns.

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Appendix
Experimental Manipulation: Fictional Child Vignette

John, who has attention deficit hyperactivity disorder (ADHD), and you are headed to the children's park about a block from your house. Upon arriving, John takes off and heads to play on the playground. No more than a minute has passed when you hear shrieking coming from the direction of John. John is running in the opposite direction of the other kids giving the other children high fiving in the stom-achs as they pass by. You then instruct him to stop hitting the other children and to instead find something quiet to do. John then goes off to the swings where a line has formed. John, trying to keep busy while in line, butts into the other kids' conversation but loses interest in the topic. Being inpatient, he jumps ahead of the line and unto the swing. Several parents approach give you disapproving "looks" while others mention that your child is causing all sorts of commotion. As a punishment, for not following the "keep your hands to yourself" rule, you then instruct John to sit out for five minutes. John starts to fidget and squirm in the spot where you instructed him to sit. Unable to sit still and wanting to join the other children, John gets up, without your permission. Without thinking of the consequences decides to starts climbing up on top of the tube slide, falls and lands in a puddle of mud. At this point, you have had enough of John's behavior and go home. Before arriving at the door way, you ask him to take off the muddy shoes and socks. Two steps away from stepping in the house John, forgetting your instructions, barges in front of you and sprints in the house tracking mud all over the house.

Note: *This is the experimental condition. The control group condition was identical except that the first sentence did not include the phrase regarding ADHD.*

Special Features

Conducting Psychological Analysis: Dramatic

Overparenting, Machiavellianism, and Autism Spectrum Disorder: An Analysis of Psychological Concepts in _Bob's Burgers_

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Abstract—_Bob's Burgers_ is an award winning animated adult comedy series that follows an unconventional family through their unusual life events and experiences running a restaurant. This paper analyzes "Synchronized Swimming" (season 2, episode 3) for underlying psychological concepts and theories portrayed within the program. In particular, portrayals depicting overparenting by the mother, Linda, will be discussed and relevant literature reviewed. Additionally, the Machiavellian behaviors of the youngest child, Louise, will be analyzed, along with current research on the topic. Lastly, the behavioral nuances of the eldest daughter, Tina, will be discussed and compared to Autism Spectrum Disorder qualifications, as well as other associated conditions. .

Keywords: television, overparenting, Machiavellianism, Autism Spectrum Disorder

Bob's Burgers is an animated comedy series that recently completed broadcasting its fifth season. The show first aired in 2011 on the Fox channel. _Bob's Burgers_ humorously chronicles the lives of the Belcher clan and their struggling, family-operated burger restaurant. The father, Bob, is a cynical realist who often finds himself in predicaments created by his family. The mother, Linda, is the fun-loving parent who all too often hovers over the children. Together, they oversee the lives and work of their three children: Tina, 13, the awkward eldest child; Gene, 11, the eccentric middle sibling; and Louise, 9, the feisty and manipulative youngest child. The family lives in an apartment above the restaurant in a shore town along the East coast. Though on the surface the family seems relatively normal, the case can be made that the Belchers have both clinical and subclinical disorders, as well as questionable parenting practices. This paper will focus on the episode "Synchronized Swimming" that portrays the Belcher kids as they convince their guidance counselor to let them conduct an independent study course on synchronized swimming instead of participating in P.E. class (Schlesinger & Chun, 2012).

Parenting Styles

The episode started off with Gene asking his mom, Linda, to check his math homework. Gene drew an elaborate robot on the math assignment, but had not attempted any of the questions. While Linda is looking at Gene's homework, Louise interrupted and asked if Linda had the chance to read a particular book. Linda went on to tell Louise the

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book's ending and Louise even instructed her mom to, "Write it down. Write it down." Linda was oblivious to the fact that her children were using her to do their homework. Bob stepped in and said to Linda, "Lin, we've talked about this a thousand times. You can't keep doing the kids' homework for them." Linda defended herself and said that she was just helping them. Linda's overt involvement in her kids' school work was an example of overparenting.

Overparenting can take many different forms and can also impact a child's overall wellbeing (Locke, Campbell, & Kavanagh, 2012). Locke and colleagues grouped overparenting into six different categories. Group 1, low demandingness, categorized parents that did not expect the child to become independent or face the consequences of their behaviors. Group 2, high responsiveness, was composed of parents who were preoccupied with their children's needs, and whereabouts, often hovering to the point of intrusiveness. Group 3, a combination of high responsiveness and low demandingness, described those parents who were highly involved, but did not expect much from their children. Locke and colleagues give examples of highly responsiveness and low demanding parents, one of which was doing a child's homework. This category best fits the behavior that Linda depicted in the scene. Group 4, high demandingness, described those parents who have high levels of expectations for their children. Group 5, a combination of high and low demandingness, categorized parents who had high expectations, but when those expectations were not met attempted to solve the issue for the child rather than empowering them. Lastly, Group 6, contextual factors, described different factors that could influence overparenting. For example, parental anxiety levels, socioeconomic status, and culture. Linda was quick to help the children out, but clearly did not expect much from them in the first place. When parents are so highly responsive, they often do not require their children to solve their own problems. This can result in a stunted development of maturity, lack of responsibility for their actions (Locke et al., 2012), feelings of entitlement (Capron, 2004; Locke et al., 2012), and can also impact anxiety levels for children (Locke et al., 2012; Segrin, Woszidlo, Givertz, & Montgomery, 2013).

Machiavellianism

After the opening scene, the episode transitioned to the Belcher children discussing P.E. class at lunch time. Each child agreed that they disliked the class. Tina stated in her usual monotone fashion, "I hate how I always get hit in the head with a ball." Louise said that she hated the dumb rules. A scene flashed where the P.E. teacher asked for Louise to take off her hat. Louise is extremely fond of a particular pink, bunny-ear hat that she wears in every episode.   Louis lied and yelled that she had a staph infection on her head. "Touch this hat and we all go down. Do you want to play dodge ball in the hospital?" she screamed out to the class. The scene transitioned back to the lunch room where Louise suggested stopping by the guidance counselor's office to see what they could do about the situation because, as she put it, Mr. Frond was highly suggestable.

Outside of the counselor's office Louise staged a conversation with her other two siblings that described their dissatisfaction and feelings of inadequacy regarding P.E. class. Her ruse worked and the guidance counselor, Mr. Frond, came running out to assist. Louise spearheaded the conversation and asked if they could do an independent study course instead of P.E. class. After Louise suggested a swimming independent study class, Tina gauchely proposed synchronized swimming. Mr. Frond thought that was a superb idea and expressed that he wished he had come up with it. Louise quickly convinced him that he had come up with the idea. The scene ended with Mr. Frond informing the Belcher kids that they would need adult supervision for the new course. Louise was quick to forge Linda's signature for the consent form.

The second scene portrayed Louise as exploitative and deceitful. Because of these traits, a case can be made that Louise displayed qualities characteristic of Machiavellianism and narcissism. Just as she used Mr. Frond to get out of P.E. class, Machiavellianists often view others as a means to an end (Christie & Geis, 1970). Louise deliberately orchestrated a plan to manipulate Mr. Frond and without delay or reflection signed the paper to finalize her exploitative idea. Machiavellianism is described as a personality trait that includes manipulative behaviors in dealing with people, dis-

trust of others, as well as emotional detachment. Louise showed no hesitation or contrition when she lied to her P.E. teacher about a medical condition, for something as trivial as keeping her hat on. Each time she manipulated someone, in particular her mom and Mr. Frond, Louise satisfied her own self-benefited agenda. Narcissism, while sharing overlapping features with Machiavellianism, is conversely characterized by entitlement, egotism, and self-centeredness (Jakobwitz & Egan, 2006). Louise seemed to believe that she is owed exceptions to rules, even if by way of lying or scheming. Machiavellianism can be developed through child-drearing from a parent who rates low on Machiavellianism traits (Christie & Geis, 1970). In line with the correlation suggested by Christie and Geis, Linda indeed displayed few, or no, Machiavellianism characteristics. As mentioned before, overparenting may manifest certain undesirable traits in children. Studies suggest that overparenting is correlated with narcissism (Capron, 2004; Segrin et al., 2013) and entitlement (Capron, 2004; Locke et al., 2012). Linda's parenting techniques could be correlated, or potentially be the cause of Louise's Machiavellian personality.

Autism Spectrum Disorder

The next day the Belcher kids were sitting in the restaurant dining room before school when Linda came in and said that she had washed the kids' gym clothes. In a maladroit fashion, Tina stated that they no longer needed gym clothes. Louise quickly said, "Tina! Of course we do. What, are we going to run laps naked?" With Tina's lack of social awareness, lack of expressiveness, and social anxiety, the case can be made that she has a mild form of Autism Spectrum Disorder (ASD). The American Psychiatric Association (APA) lists in their diagnosis criteria for the Diagnostics and Statistical Manual of Mental Disorders 5th edition (DSM-V) that ASD is in part characterized by deficits in social communication or interactions and difficulty in adjusting behavior according to social context (APA, 2013). Tina has an inability to transition from sibling talk, riddled with information Bob and Linda are not supposed to know, to speaking with her parents. Another diagnostics criterion listed in the DSM-V for ASD is repetitive or idiosyncratic speech. Tina has a notorious, and sometimes inap-

propriate, groan that she often lets out when nervous or under pressure. Tina's anxiety may go hand in hand with her speculated ASD diagnosis. Bejerot, Eriksson, and Mortberg (2014) found that persons with ASD show significantly higher levels of social anxiety compared to control groups. Similarly, Hallett et al. (2013) found that individuals with ASD ranked significantly higher on scales measuring social anxiety, general anxiety, and panic symptoms. The writers of the show may be fully aware that Tina's character lies on the Autism spectrum. In the show's pilot episode, "Human Flesh," after a comment from Bob that Tina is not good with customers, Louise chimed in that it was because Tina is Autistic (Bouchard, Dauterive, & Chun, 2011). Bob was quick to disagree, but it is clear to viewers that Tina possess some, if not many, ASD qualities.

Conclusion

Soon after the gym clothes incident, Linda saw Mr. Frond at a store. She found out that she was supposedly in charge of an independent study P.E. class that the children had lied to her about. She angrily told Bob what had happened and he expressed, "What do you expect? You coddle them too much." Just then the kids entered the restaurant where Bob and Linda were talking. Linda stated that she had a very interesting encounter with Mr. Frond that day. Louise became very worried, but Tina picked up on neither her mother's anger, nor the situation at hand, and stated, "Yeah. He's an interesting guy." This incident again reiterated Tina's ASD like symptoms. Linda started off the conversation with an upset tone, but quickly transitioned into a chipper one when she announced that she would coach the kids' synchronized swimming class to Bob's dismay. Linda could not resist the urge to cosset the children. On their first official practice day with Linda, Louise tricked her into showing them how to synchronize swim before they actually tried it. The kids' lack of interest prolonged until Linda got fed up and quit. Under scrutiny from the school board, the kids learned that they must perform a satisfactory swimming recital or else they would have to attend summer school. This was where Bob stepped in as coach, against his principle of overparenting, in order for the children to avoid summer school. After multiple at-

tempts from Louise to sabotage and cancel the synchronized swimming performance, Linda came to the rescue and directed the children to a barely adequate performance, which saved the children from summer school and allowed Bob's Burgers to maintain the family summer work force.

Bob's Burgers portrays the Belchers in a funny and entertaining light. The underlying psychological disorders, traits, and behaviors are far from humorous though. If Tina were clinically diagnosed with Autism Spectrum Disorder, by definition, it would mean her social, occupational, or other important life areas were significantly impaired (APA, 2013). Louise's manipulative nature could impact her family life satisfaction and friendship quality in adulthood (Abell, Lyons, & Brewer, 2014; Lang & Birkas, 2014). Linda's hovering parenting style could be aiding in Louise's manipulative, narcissistic behavior (Capron, 2004; Christie & Geis, 1970; Locke et al., 2012; Segrin et al., 2013) and may be impacting Tina's anxiety levels (Locke et al., 2012; Segrin et al.., 2013). Though *Bob's Burgers* may seem like a typical animated, adult comedy, the show utilizes humor and character development to accurately illustrate psychological concepts and disorders.

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Psychologically Speaking

Charting Students' Road to Success: An Interview with R. Eric Landrum

Monica Anderson[1], Victoria Church[2], Alexa M. Haave[3], Nathaniel Marino[2] & Richard L. Miller[2] *

Fort Hays State University[1], Texas A&M University-Kingsville[2], & University of Nebraska at Kearney[3]

Background—Dr. R. Eric Landrum recently completed his term as president of the Society for the Teaching of Psychology (Division 2 of the American Psychological Association). He is a professor of psychology and sometime department chair at Boise State University, where he has also served on the advisory board of the Center for Teaching and Learning and was more recently named STEM Education Research Associate. Dr. Landrum received his PhD in cognitive psychology from Southern Illinois University-Carbondale. He has worked with over 400 undergraduate research assistants and taught over 12,500 students in his 20+ years at Boise State. Dr. Landrum's research is centered on college student success, specifically how to create a teaching and learning environment that allows students to achieve their academic goals. He has over 300 professional presentations at conferences, over 20 published books/book chapters, and more than 70 published professional articles in scholarly, peer-reviewed journals. Dr. Landrum is the lead author of *The Psychology Major: Career Options and Strategies for Success* (4th ed., 2009). He also authored, *Undergraduate Writing in Psychology: Learning to Tell the Scientific Story* (2008) and *Finding a Job with a Psychology Bachelor's Degree: Expert Advice for Launching Your Career* (2009). Dr. Landrum served as Vice President for the Rocky Mountain region of Psi Chi (2009-2011) and was recently elected as President-elect of the Rocky Mountain Psychological Association.

Miller:

The Journal of Psychological Inquiry publishes undergraduate student research. In addition, there is a Special Features section that provides a forum for student essays on topical issues and also features, from time to time, interviews with distinguished psychologists. The audiences the interview is designed for are students primarily, and secondarily for faculty. When we heard that you were to be the Keynote speaker at the joint meeting of the Association for Psychological and Educational Research in Kansas and the Nebraska Psychological Society, we were excited about the opportunity to talk with you about your career and your perspectives on teaching, scholarship, and especially the involvement of undergraduate students in research. The three students who will be conducting this interview are Monica Anderson, Victoria Church, and Alexa Haave. Monica is a recipient of the Fort Hays State University Athletics Academic Excellence award and a member of the National Leadership Honor Society (Omicron Delta Kappa). She has also served as President of the FHSU Chapter of Psi Chi. After graduation, she will be pursuing a Master's degree in psychology. Victoria Church has completed her degree in psychology/ anthropology at Texas A&M-Kingsville. She graduated Summa Cum Laude from the Honors College and will be attending graduate school at TAMUK taking the LPC track. Alexa Haave is a senior with a

*Faculty Sponsor.

double major, psychology and English. She is in the UNK Honors Program, and a member of Psi Chi and Sigma Tau Delta. After graduation, she plans on enrolling in the UNK school psychology graduate program. In addition to the three interviewers, Nathaniel Marino will be assisting with the transcription and editing of the interview. Nathaniel Marino is a junior at Texas A&M-Kingsville. His research on bystander intervention was awarded 2nd place in the TAMUK Javelina Symposium, and he has been accepted into the TAMUK Presidential Undergraduate Research Program. He plans on pursuing a doctorate in psychology. So without further ado, I will leave you in the capable hands of these students, who have prepared a series of questions.

Anderson:

Our first question is: Who influenced you to become a psychologist? Were there significant teachers who played a role in your decision?

Landrum:

The answer to that is going to be three people. I attended a small private liberal arts school for my undergrad, Monmouth College, Monmouth Illinois, which at the time had a total of 640 enrolled students. The department of psychology was very small with three faculty members. At the time, they were all male faculty members--Charles Meliska, Bill Hastings, and Bill Wright. I had an amazing experience. The year I graduated there were eight psychology majors, which was a bumper crop. So I got all kinds of personalized hands-on attention. Actually, those

three gentlemen inspired me to be a psychologist. They didn't purposely set out to do that, but they did it by example. I just saw them, saw what they did, how they talked, how they cared about students, and that I wanted to emulate them. I tell students, "I wish I could say, 'Oh I wanted to help people or I wanted to make the world a better place.'" Not for me, really, it was that I had three great role models and I wanted to try to emulate them.

Haave:

What was the reaction of your family and friends to you choosing psychology as a career?

Landrum:

I would say indifferent, not negative, but just kind of okay. I never really got any traditional push to be a doctor, physician, lawyer, or anything like that. My parents were pleased that I wanted to go to college and they were willing to help finance that; and that pleased me. So there was never really a reaction. I actually didn't go to college as a psychology major. I went to college as a math major. I took calculus one and calculus two and changed my major. I got the lowest grades I ever got in college in my calculus classes, and usually you don't do that in the thing you are going to major in. So I rethought that once I got there.

Church:

Why did you decide to become a professor?

Landrum:

I think a lot of that had to do with role models, those three undergraduate role models. When I went to graduate school, Southern Illinois University Carbondale, I was there doing my thing, did a masters thesis, sat for qualifying exams, and did my dissertation. Eventually, you do start thinking, "I'm going to be out of school at some point, what am I going to do with my career?" Then you look at all the people around you, look around at your mentors, people you admire, and they were all professors. It was pretty straightforward for me to decide to be a professor. I wish I could say I thought about it and I really gave it a lot of meaningful self-reflection. I kind of feel these days it found me rather than I found it. I kind of bumbled and stumbled into it. I loved school so much I never left.

Anderson:

What motivated you to get involved in scholarship and research?

Landrum:

Essentially, the role of the professor at almost all universities is some mix and match of teaching, research, and service. As a job requirement, I had to be an active scholar and that means going to conferences, making presentations, as well as publishing in peer-reviewed journals. So there is this external motivation that the job requires, but there is an internal motivation of if you think you are doing important work, you try to find an outlet for it. And we do advance our careers in the academic side of psychology by presenting, publishing, and writing by doing books, blogs and websites. It is part of the expectation of a professor to do scholarship and actively contribute to the research literature.

Haave:

What were your early research interests?

Landrum:

Two things. I started as a rat runner. I was doing caffeine research with rats with my mentor, Charles Meliska, Monmouth College. We did wheel running and all kinds of really cool stuff. Then I transitioned from caffeine research with rats to caffeine research with humans. So you start doing experimental studies where the experimental group is getting something to drink with caffeine in it, and the control group is getting something to drink with no caffeine. Then there is a true double blind study, and all that good stuff. I started with that research because that was what my mentors were doing, but then I quickly got into more experimental research with humans. I went to graduate school and was trained as a cognitive psychologist, so I continued to work with humans. So, I haven't done rat research in probably 25-30 years, although that is where I got started. Actually, I have one, maybe two, publications in journals that feature rat research, so that is old school stuff for me.

Church:

What or who influenced your passion for doing research on the scholarship of teaching and learning? What aspect or aspects of teaching psychology, and the study of it, most interests you?

Landrum:

This is going to sound hokey, but it's really

true, it's about helping students. I was very practical early in my career. I had all of these students coming to me who wanted to know about how to go to graduate school or how to get a good job with their bachelors degree in psychology. Quite honestly, I didn't know the answers, as a young assistant professor, so I did a little bit of literature research and I found an article here or article there, usually in a journal such as Teaching in Psychology. I found some tidbits or an occasional book written about it, but there wasn't a lot. Really for me, necessity was the mother of invention, so I started doing research in that area and publishing it in different places. Eventually then I started to write books in that area and getting those published. It was always very practical for me since my audience at Boise State is primarily undergraduate psychology majors. We don't have a graduate program in psychology. So, I'm not trying to create little mini-Me's in graduate school. I am really trying to help the whole realm of undergraduate students whether they want to go to graduate school or not. So again, it was very practical and very utilitarian. I wanted to help people. I didn't have the information I thought I needed, so I went about creating it. I have been very fortunate that Boise State has been very supportive of that kind of research. It is not necessarily cognitive, developmental, or neuroscience, but it is SoTL (Scholarship of Teaching and Learning) and educational psychology. I really feel like I have been able to advance my own career, as well as being able to help undergraduate students, with evidence-based advice on what their options might be after they are finished with their bachelor's degree.

What aspects of teaching psychology, and the study of it, most interests me? It kind of varies with what courses I'm teaching. I would probably say these days I am most interested in research methods, because I teach that a lot and I have written about it quite a bit. I'm all about skills, and what I mean by that is I really think the skills that students get while they are an undergraduate student should transfer either to graduate school or that good job with a bachelors degree. Research Methods is the course where you get to learn, relearn, and practice

skills. Whether it is things you should have learned in your statistical methods class, and should have remembered, but you really don't. Whether it's the design of an experiment, analyzing real data, or using SPSS as a data-analysis tool, I'm really most excited about helping students develop the skills that will help them be successful in their future. Employers do a great job at telling us what they want in their collegiate new hires. I think faculty members have a responsibility to help our students be successful no matter what path they want to take after their undergraduate careers. I guess research methods right now is the preferred course for me. However, it depends on whether I am teaching general psychology, which I have taught for an eight-year stretch. I have taught statistics, advanced statistics, and psych measurement, so my excitement about a topic area depends on what I am teaching.

Anderson:

What influenced you to write books such as, Finding a Job With a Psychology Bachelor's Degree: Expert Advice for Launching Your Career, You've Received Your Doctorate in Psychology – Now What? and other related works?

Landrum:

There are always a bunch of different reasons to write books. Those two books in particular are really helpful for undergraduate students and graduate students respectively, again that's all about helping students. To be honest with you, books will help you advance your career. Once you write one book it is easier to write the second, third, and fourth because you have a track record, and there is a very small financial incentive. Trust me; I'm not going to be able to quit my day job any time soon off the royalties on those two books or all of the books I have written combined. Finding a Job with a Psychology Bachelor's Degree: Expert Advice for Launching Your Career, I'm really proud of because there are not a lot of resources out there for undergraduates who do not want to go to graduate school. There are all kinds of books from APA (and others) that will give you graduate school advice for clinical and counseling programs and how you get into those. There are all kinds of books about the graduate school route, but very few

books about the non-graduate school route, so that's what I like about that book. The other one you mentioned, You've Received Your Doctorate in Psychology – Now What? I like because I was sitting with the co-author, Elizabeth Morgan, who was a faculty member here at Boise State at the time. She and I were in a departmental search committee meeting, and we were doing telephone interviews. Someone on the telephone applying for the position at Boise State made a really basic error in interviewing, or said something that was obnoxious, and they should have known better. We stared at each other, and I scribbled on a piece of paper, these applicants haven't been trained very well to do job interviews. Graduate faculty are usually tremendous at training their students to do research, to be critical thinkers and be serious researchers, but not all graduate faculty members are great mentors on how to get a job. So that's where that book was born. So we wrote the book that provided advice that faculty advisors may or may not know to give to graduate level doctoral students who are now going for their first job.

Haave:

How, if at all, have you involved undergraduate students in your research?

Landrum:

I involve them heavily. Since, I'm going to say 1989, I've probably worked with 400 undergraduate students who were my research assistants. I've always been in institutions that did not have a graduate program in psychology so, what made my career was the assistance of undergraduate research assistants. The goal is to go to a conference, typically Rocky Mountain Psychological Association or Midwestern Psychological Association, with the work that we're doing. I always want students to get a conference experience out of working with me for a year. Some of them have gone on to co-author articles with me based on their work. Occasionally, students have gone on to be the first author on articles, if they really took the lion's share of responsibility and did the bulk of the work. I've also written about the undergraduate research experience in different places including Teaching of Psychology or Eye on Psi Chi. Undergraduate researchers have been a huge part of my professional life.

Church:

What is one research question you hope to see answered in the years to come? And why?

Landrum:

Wow! Just one, huh? I'm going to give you a broad brush. We need to know much more information about what our graduates do and what skills and abilities they leave with after completing the undergraduate psychology major. For instance, an accounting major has a really good idea what they are going to do with the skills they leave with. A nursing major has a really good idea about what their skills are and what they are going to do, as do architect majors, teacher education majors, and social work majors. A psychology major, often times, has no idea what they might do following graduation. They actually have skills and abilities, but they don't know what they are going to do with them, and they may not even be aware of their own skills and abilities. That's a really broad research question, but I wish multiple people around the country would elaborate on the answer to that one. It's too big for a single university. There are teams of people who would do studies like that; they'll do an alumni survey, and I've published some of those myself, and they're nice one-shot studies, they're easy to do, but we need national data. We need to know about the trends nationally about what our students are doing, the jobs they are going into, and the skill sets they have. I think it would help psychology departments tell their story better, as well as helping psychology majors tell their own story better. I think that the frustration psych majors feel sometimes is that they don't know what they are going to do with their psych bachelor's degree when they are in the midst of earning their degree. That causes angst and some anxiety. I think, as a discipline, we need to get on that as a research agenda, helping students better understand the amazing skill set that they obtain with a bachelor's degree in psychology.

Anderson:

How did your early undergraduate experiences shape the way you deal with undergraduates now?

Landrum:

My early undergraduate experiences totally shaped the way that I deal with undergraduates now. I had that small, private, liberal arts experience. I had three faculty members who knew my name early on. I had the same classes, with the same three, over and over again. I went to MPA, Midwestern Psychological Association, in 1985 for the first time and presented an undergraduate thesis there. That culture of doing research and one-on-one mentoring with students is something that I have tried to continue at Boise State. I'll tell you, at Boise State right now with thirteen faculty members and 1,000 psychology majors, I can only do a quality experience with about five students a year, and my colleagues try to do the same thing. Not everybody gets the research experience at a large school like you might be able to get at a small school, but I do try to emulate the experience I had with my students. And that's why I encourage all of my research assistants to try to go to a conference; to have the same kind of undergraduate experience I had in going to a conference when I was a senior in college.

Haave:

How has your teaching style evolved over the years?

Landrum:

Wow, that's a really good question! My teaching style has evolved greatly. When I first got out of graduate school, I taught the same way that I was taught. A lot of that model was, a midterm and a final, multiple-choice items, and you lectured all semester long. Students took notes, studied, and took a midterm and a final. I don't know if it's 180 degrees or 360 degrees, but I've changed dramatically, especially in the last eight to ten years. For example, I don't give tests. I will use multiple-choice items as an inducement to come to class, with clicker questions, but I don't give tests anymore. The reason for that is that, to my knowledge, there's no job in the United States that a student can get taking a test for a living. Why are we putting so much emphasis on that skill, which really isn't going to transfer very well at all to the workplace? I really try to focus on skills-based courses where students are producers. They are writing a paper, they are creating a podcast, they're doing an online debate, they're doing something where there's a product at the end as opposed to a multiple-choice test, where all

there is at the end is a score. Another example of dramatic changes I've made in my teaching would be that I flipped the classroom. I don't lecture in class. My lectures are actually online; they are available on YouTube. I have my own YouTube channel. It's shockingly popular. People all over the world do a search on "between-groups designs" and they'll find my lecture from my research methods class. It's really bizarre in some ways, but the unintended reach you can have by having materials available on the Internet for free. I have tried to design classes where my students are active and engaged and I try to minimize the amount of time that I am talking. That doesn't always work in every class. But, I don't walk in with power points and lecture slides on a typical day and feel I've got to get through this material because there's a test next Tuesday. I don't give tests, so there's no race to get through the material. It's all about learning the applications of the material. How can I learn this technique and research method that I might be able to use in my next class, or in my research assistance, or when I go off to graduate school? In 2008, I started using clickers; I'll never look back. I'll never teach a class, ever again, without an audience/ response system. Once you start understanding what your students do and do not know in the middle of class, it changes life forever. If I've given a clicker question on positive and negative reinforcement and only fourteen percent of the class is getting it right, I can't just plow on to the next topic. You've got to stop and talk about that. You don't just gloss over the things that the bulk of the class doesn't understand. With the use of technology, and some other pedagogical strategies, I've dramatically changed the way I teach.

Church:

Could you please talk about the STEM program, and your involvement/ thoughts on it?

Landrum:

About STEM at Boise State, or STEM in general?

Church:

I believe STEM in general. Even if it's there at Boise or here, what are your thoughts on it as a whole?

Landrum:

Well, it's good news/ bad news. I think it's admirable that you want to, as a nation, call attention to science, technology, engineering, mathematics, but sometimes that puts other disciplines in a lesser light even though they do very important things like English composition, history, and philosophy. Sometimes it creates haves and have-nots. While it's great to promote it, sometimes the promotion can create a disadvantage for other programs on campus. Having said that, psychology has had to fight for a long time to be accepted as a STEM as part of social science. Actually, the National Science Foundation recognizes psychology as a STEM discipline, but many folks outside of psychology around the country don't think of psychology as a STEM science. The disadvantage of that is that there are millions of dollars of federal funding available for STEM grants and STEM research, and so, if you are not part of that label, you're less able to meaningfully compete for those grant dollars. It's actually more than a label; it's really an important distinction that makes a difference. It's important to get it right is what I am trying to say. I think STEM, the emphasis on STEM, is good. But, I think it is disadvantageous to other disciplines that are important. Then, we have to worry about how psychology is included in STEM. When it's excluded, what are the possible detriments of that.

Anderson:

What is your favorite part about working with undergraduate students?

Landrum:

Again, this is going to sound hokey, but the favorite part is seeing them succeed. I don't have students who I want to become a little mini-me. I don't have the desire for all my best students to go off to graduate school. I have the desire for my students to figure out what they want to do, and then have the means, motivation, and opportunity to make that happen. It's just great to see the light bulb go on with students. So many psych majors come into psychology and all they care about is clinical and counseling, and there's nothing wrong with that. It's a very noble profession. I think sometimes that psych majors don't realize that there are multiple ways to help people without it being just about clinical and counseling psychology. You get students who come around

who start thinking about, "I might do...I like doing experiments...I like doing research... so, this experimental psychology stuff that I have been exposed to..." can really turn the light bulb on for some students. It's nice to see them make connections. We have this bad habit of teaching in buckets. You need to take three credits at a time, and you fill the bucket, and when you fill enough buckets, you graduate. What I like helping students see is the long haul, the big picture, connecting point "a" to point "b," where they can see across their classes and experiences and they see what the bigger, overarching goals are. When students can see that, and take advantage of that, then I'm pretty happy about that.

Haave:

How can instructors increase the appeal of research for their undergraduates?

Landrum:

I think that instructors can increase the appeal of research to undergraduates just by being naturally excited about it. Most faculty members are really interested and excited about the research they're doing. Faculty members have autonomy in determining what topics they are going to do research on; at least in most cases they do. Just showing excitement about the research and the practical, real-world impact can get students interested. I think for some students it helps to make a bit of a sales pitch. Talk about the beneficial aspects of doing research, not only testing out real world ideas in the classroom, but also having a one-on-one mentoring relationship with a person that's hopefully going to lead to a strong letter or recommendation. Learning about those concepts outside of the textbook in the laboratory, getting your hands dirty, are the ways that you sell research. This includes both the natural, intrinsic excitement about research, as well as appealing to students that this is a great thing for their future, whether they're going to graduate school or not.

Church:

What are your future plans for scholarship and teaching?

Landrum:

My future plans...I really don't have it mapped out. There's a name for me, there's a label for me. It's called a dilettante. I'm a dilettante, not a debutante. I'm a dabbler. If you were to look at my CV and do some sort of analysis of what I publish and where I publish, you'll find very few trends at all. If I get into something, I'll study it for four to five years. I'll try to present about it, I'll try to publish on it, and then I'll go on to the next thing. Asking me what the map is for the next little while is a really good question that I don't have a decent answer for. I think there are some things that easily emerge out of this. I think creating resources that will benefit undergraduate students is a big part of what I'm all about. I think the assessment of skills and helping students tell their story, as well as the departments tell their story about what they do well, is a part of my future. It's actually part of a grant here, at Boise State, looking at this thing called EBIPS-- evidence based instructional practices. It's really rewarding for me to work with faculty members to help them think about what are the techniques that they might use in their class, and how might they asses the effectiveness of those techniques so that they could improve their own teaching practices. I'm just having a lot of fun right now in this point of my career. I get to do what I want to do research-wise. I enjoy the classes that I am teaching. I have great colleagues, both here and around the country. It's good to be me. That doesn't sound very humble, but I am very pleased with how things have turned out and the opportunities that have been afforded to me. I am very thankful for those opportunities.

Anderson:

What publications are currently in the works?

Landrum:

What publications are currently in the works? Without looking at my CV, I've got one that is a general review of clickers in the classroom. I've got one with another faculty member on campus about using technology in the classroom in a large lecture hall to help students make connections with course materials. There are a couple of book chapters underway. They tend to be about things like careers in psychology. In 2015, I'll actually be one of the inaugural co-editors of a new journal published by APA called, The Scholarship of Teaching and Learning in Psychology. So although I'll write occasionally for that, it's more of an editing gig. I'll be ed-

iting that with my colleague and friend Regan Gurung.

Haave:

What do you see as the value of general education courses?

Landrum:

I think Gen Ed, or core classes, or whatever you want to call them, have huge value. I think that those are the places that students get exposed to ideas that they might not normally be exposed to. I mean with all due respect, the university is about being exposed to a wide array of ideas, that's the liberal arts tradition. If all you wanted was to go get a job, you can go to a vocational school and they teach the skills to get a job. You don't have to take a Gen Ed curriculum to become a plumber or a welder or a craftsman. Those are very important jobs, don't get me wrong, but general education gives you that unique university experience and exposes you to philosophy and the arts and the humanities and the sciences and the social sciences and makes you think about things you might not have thought of otherwise. Sometimes that encourages or leads to a student changing their major and sometimes they stick with their own major. But, I think that's a very important part of the American educational system that there's this general education and exposure to broad ideas from different disciplines across higher education.

Church:

What would be one piece of advice you would give to a student currently studying psychology as an undergraduate?

Landrum:

Just one piece of advice I'd give to an undergraduate student; take advantage of the opportunities afforded to you. Which means, talk to faculty members, and become active outside the classroom. Being a 4.0 GPA book student is a great accomplishment, but most universities and colleges around the country provide opportunities to get active and involved outside of the classroom including, being a teaching assistant, research assistant, undergraduate peer advisor, or internships. I would encourage students to take advantage of the opportunities afforded to them and not just be a great book student. Being a well-rounded student on multiple levels will demonstrate your knowledge, skill, and abilities.

Anderson:

What, in your opinion, most engages undergraduate students in the classroom?

Landrum:

I think it's when they can think meaningfully about their own lives. When students can see the connection between what they're learning about and their own lives, I think that's the best way to engage our students. In some classes, that's a hard thing to sell. In a research methods class, you may have to stretch a little bit and be an experienced instructor to show students where what they're learning may be directly applicable. In other classes like social psychology, it's easier because the concepts are fascinating and they directly apply to almost all of our lives. Introductory psychology is interesting because it's all about us--about human beings and our behavior and quite honestly what could possibly be more interesting than us, right? I think if you find a way to connect the student's lives, they'll tune in most of the time. They'll pay attention. You make it practical. You don't do busy work. You don't do stuff that's meaningless, that is a time-filler because none of us have time for that. I tell my students that at any time in the semester you can ask me, "Why are we doing this?" and I should have a good answer. If I can't answer the "So what?" question, the "Why are we doing this?" question, easily off the top of my head, then we probably shouldn't be doing what we're doing.

Haave:

How do you balance your work and home life?

Landrum:

Here's how I try to describe that; I think you can have it all. I just think you can't have it all at the same time. What I mean by that, is that when I had young kids at home I made them a priority. That was my goal, to make them a priority and sometimes I probably wasn't the best professor because I was trying to be the best dad that I could be. As they get older and are more independent, they might not need you as much and so you can shift your emphasis back towards career. Work life balance is really important because you can get burned out in a lot of different careers working sixty, seventy, eighty-hour weeks. That's not fun over the long-haul. I really try to find this balance of work

hard, play hard. When I'm working, I try to work hard. But when I'm not, I can stop looking at emails and stop looking at my phone every five seconds, and stop checking for text messages and actually be engaged in what I'm doing away from work. I do think it's important to find that work-life balance, but sometimes it's going to be out of balance. It's going to be out of whack and hopefully you've got the social structure and support system around you that you can weather those storms when that does happen.

Church:

What are your hobbies?

Landrum:

What are my hobbies? Well I have tons of hobbies. I have two that I'm passionate about: photography and woodworking. As an undergraduate, my job at college was to run what's called a photo lab. I actually took pictures on campus, as well as ran a black and white dark room. I still love photography these days. I'm actually best at landscapes and really enjoy that. The other hobby is woodworking and I have a lot of tools. You know if you're a woodworker you want every tool eventually. When I have time for that I like making small things like a band saw box or pens or things like that. I don't build bookshelves and things like that. When I have time for hobbies these are the two big ones.

Students:

Thank you very much for taking the time to talk with us.

Journal of Psychological Inquiry

Call for Papers

The *Journal of Psychological Inquiry* (JPI) encourages undergraduate students to submit manuscripts for consideration. Manuscripts may include:

- *Empirical studies*

- *Literature reviews*

- *Historical articles*

- *Special Features I:* Evaluating controversial issues. Two students work together on different facets of the same issue.
    - Select a controversial issue relevant to an area of psychology (e.g., Does violence on television have harmful effects on children?—developmental psychology; Is homosexuality incompatible with the military?—human sexuality; Are repressed memories real?—cognitive psychology). Each student addresses the current empirical research and makes a persuasive case for one side of the argument.

- *Special Features II:* Conducting psychological analyses- Dramatic. This manuscript is a psychological analysis of a television program or movie.
    - Television program: select an episode from a popular, 30-60 min television program, describe the salient behaviors, activities, and/or interactions, and interpret that scene using psychological concepts and principles. The presentation should identify the title of the program and the name of the television network. Describe the episode and paraphrase the dialogue. Finally, interpret behavior using appropriate concepts and/or principles that refer to the research literature.

    - Analyze a feature film for psychological content. Discuss the major themes but try to concentrate on applying some of the more obscure psychological terms, theories, or concepts. Briefly describe the plot and then select key scenes that illustrate one or more psychological principles. Describe how the principle is illustrated in the movie and provide a critical analysis of the illustration that refers to the research literature.

- *Special Features III*: Conducting psychological analyses- Current events. By using the perspective of any content area in psychology, this manuscript analyzes a current event.
    - Example 1: Several psychological theories could be used to describe people's reactions to the destruction of the World Trade Center on September 11, 2001. Terror management research has often shown that after reminders of mortality people show greater investment in and support for groups to which they belong and tend to derogate groups that threaten their worldview (Harmon-Hones, Greenberg, Solomon, & Simon, 1996). Several studies have shown the link between mortality salience and nationalistic bias (see Greenberg, Simon, Pyszczynski, & Solomon, 1992). Consistent with these findings, the news reported that prejudice towards African Americans decreased noticeably after 9/11 as citizens began to see all Americans s more similar than different.

- Example 2: A psychological concept that could be applied to the events of September 11 would be that of bounded rationality, which is the tendency to think unclearly about environmental hazards prior to their occurrence (Slovic, Kunreuther, & White, 1974). Work in environmental psychology would help explain why we were so surprised by his terrorist act.

- *Special Features IV:* <u>Teaching techniques</u>- Student and faculty mentor collaborate on this manuscript regarding a teaching technique the faculty member uses that the student found particularly helpful.
  - Some examples of teaching techniques are interteaching, the use of clickers, podcasting, team-based learning, and reflective journaling. The description should contain enough information so that another teacher could use the technique and should provide reasons why you think the technique worked well. The second half of the paper should be written by the faculty member who can explain why he or she chose the technique you found to be effective, and what they hoped to accomplish in terms of learning outcomes by using the technique.

Manuscripts may cover any topical area in the psychological science. Further details for the special features submission can be found at the end of volume 18 (1), available at: http://www.fhsu.edu/psych/jpi/

Submission Details:
1. Manuscripts must have an undergraduate as the primary author. Manuscripts by graduates will be accepted if the work was completed as an undergraduate. Graduate students or faculty may be co-authors, if their role was one of teacher or mentor versus equal collaborator.
2. Manuscripts must come from students who meet the following conditions: (a) from students at institutions who are current on their financial annual support of JPI (see list on JPI website), (b) from students at institutions who are willing to pay an $80 annual processing fee for unlimited submissions, or (c) from students who pay a one-time $30 processing fee to have a single submission processed.
3. Submit original manuscripts only. Do not submit manuscripts that have been accepted for publication or that have been published elsewhere.
4. All manuscripts should be formatted in accordance with the APA manual (latest edition).
5. Submissions are made online at http://www.edmgr.com/jpi.
6. Ordinarily, the review process will be completed in 30 to 60 days.
7. If a manuscript requires revisions, the author(s) is (are) responsible for making the necessary changes and resubmitting the manuscript to the Journal. Sometimes you may have to revise manuscripts more than once.
8. For further submission guidelines, see the JPI website at http://www.fhsu.edu/psych/jpi/ or contact Dr. Jenn Bonds-Raacke (jmbondsraacke@fhsu.edu) or Dr. John Raacke (jdraacke@fhsu.edu).