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Cover Design

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

Instructions for Contributors

The *Journal of Psychological Inquiry* encourages undergraduate students to submit manuscripts for consideration. Manuscripts may include empirical studies, literature reviews, and historical articles; manuscripts may cover any topical area in the psychological sciences. Write the manuscript for a reading audience versus a listening or viewing audience.

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Adolescent Ethanol Exposure Enhances Locomotor Activity in Adult C57BL/6J Mice

Darin Weiland and Frank M. Ferraro III*

Nebraska Wesleyan University

Abstract

Early exposure to psychoactive drugs increases the likelihood of dependence in adulthood. Many abused drugs (including ethanol) produce an increase in locomotor activity when administered repeatedly. This phenomenon is called behavioral sensitization. Male C57BL/6J mice were used to examine whether adolescent exposure to ethanol enhances the sensitizing effects of ethanol in adulthood. The results indicated a significant enhancement of locomotor activity in adult C57BL/6J mice that were given ethanol during adolescence. Perhaps adolescent exposure to ethanol alters the function of the reward pathway in the adult mouse brain. Future research should attempt to replicate the current findings using female C57BL/6J mice and different inbred mouse strains to provide a more complete understanding of ethanol-induced sensitization.

Keywords: ethanol sensitization, C57BL/6J mice, adolescence

Behavioral sensitization is an experimental paradigm in which multiple treatments of stimulant drugs produce a progressive increase in motor activity of laboratory animals (Kalivas & Stewart, 1991). The progressive increase in activity following psychostimulants can be viewed as an opposite phenomena to tolerance, where a drug gradually loses its effectiveness over time. Sensitization can be produced with a variety of psychostimulants including cocaine (De Vries, Schoffelmeer, Binnekade, Mulder, & Vanderschuren, 1998), amphetamine (Collins, Montano, & Izenwasser, 2004) as well as opiate-based drugs such as morphine (Tassin et al., 1992). Ethanol is a drug that also produces sensitization. Hunt and Lands (1992) proposed that ethanol sensitization may be influence driving controlled alcohol drinking in humans to states of uncontrolled consumption. Clinical data suggest that sons of alcoholic parents are more susceptible to the stimulant properties of ethanol compared to sons from non-alcoholic parents (Newlin & Thomson, 1991). Therefore, behavioral sensitization is believed to represent a form of neural plasticity, in which the brain is altered as a result of prolonged drug exposure. The alterations in brain chemistry and function as a result of extended drug administration are contributing factors to drug addiction (O'Brien, 2001). Thus, sensitivity to the stimulant properties of ethanol may serve as a useful behavioral marker indicating abuse potential.

Masur and Boerngen (1980) were the first to publish data demonstrating repeated ethanol treatment (60 days) produced locomotor stimulation in mice. Since then, behavioral experi-

ments have consistently shown that mice display ethanol sensitization (Crabbe, Phillips, Cunningham, & Belknap, 1992; Cunningham & Noble, 1992; Lister, 1987; Phillips, Dickinson, & Burkhart-Kasch, 1994; Phillips, Huson, Gwiazdon, Burkhart-Kasch, & Shen, 1995). While many strains of mice show sensitization to ethanol, the primary strain used have been Dilute Brown Non-agouti (DBA) mice. These mice have been well-characterized as having low ethanol consumption levels (≤ 0.8 g/kg/day) but robust ethanol locomotor sensitization (Phillips et al., 1994). In contrast, few published reports on ethanol sensitization have focused on C57BL/6J mice. The C57BL/6J strain is well known for having a high ethanol drinking profile, consuming approximately 10-12 g/kg/day (Belknap, Coleman, & Foster, 1978). Considering that C57BL/6J mice voluntarily consume more ethanol than DBA mice, it is important to explore the factors influencing the motor stimulating effects of ethanol in this strain, as C57BL/6J mice may be a more relevant mouse model of human alcohol use and abuse.

Adolescence is a key developmental period where numerous physiological systems are modified. Some of these modifications occur in hormonal and neural systems in the brain (Spear, 2000). This idea is important as many humans become familiar with alcohol and other psychostimulant drugs in adolescence. The initiation of early alcohol drinking in humans provides an important predictor of later alcohol use and abuse (Grant, 1998). Individuals who start drinking at the age of 14 years and younger are approximately four times as likely to become alcohol dependent as are those who began drinking at the age of 20 years or older (Grant & Dawson, 1997). Clearly, early ethanol exposure can have an enduring effect on future behavior.

Studies on laboratory animals indicate that adolescent rodents are more sensitive than adult rodents to the short- and long-term effects of ethanol on a variety of dependent factors including: spatial memory (Rajendran & Spear, 2004), conditioned place preference (Philpot, Badanich, & Kirstein, 2003), and social interaction (Varlinskaya & Spear, 2002). A few studies have compared ethanol sensitization profiles of adolescent and adult mice, but these reports have centered on

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inbred strains such as DBA mice (Stevenson, Besheer, & Hodge, 2008) or specific genetic knockout models such as nitric oxide synthase mutants (Itzhak & Anderson, 2008).

Reports concerning the effect of adolescent ethanol exposure on adult C57BL/6J mouse locomotor sensitization behavior have not yet been published. Therefore, the purpose of this study was to investigate how early ethanol treatment affects adult locomotor responses in C57BL/6J mice. We hypothesized that male C57BL/6J mice given multiple ethanol treatments during adolescence would display an increase in ethanol-induced locomotor activity as adults compared to adult C57BL/6J mice given multiple saline treatments during adolescence.

Method

Animals

Male C57BL/6J mice ($N = 20$) were purchased from The Jackson Laboratory (Bar Harbor, ME). Mice arrived at 4 weeks of age and weighed between 14.3–17.7 g. Mice were individually housed in polypropylene cages with bedding and orchard grass for nesting material. The mice were housed in colony room with a 12:12 hr light cycle (lights on at 6 am, lights off at 6 pm) and the ambient room temperature was maintained between 71–75° F. Water and chow (Oxbow Pet Products, Murdock, NE) was available ad libitum during all phases of the study. All experimental procedures were approved by the Institutional Animal Care and Use Committee (IACUC) at Nebraska Wesleyan University.

Research Design

A 2 x 7 (Ethanol or saline treatment during adolescence x Test day) mixed design with repeated measures on the test factor was used for the current study. Both adolescent treatment groups were administered ethanol during adulthood and immediately tested for locomotor activity across seven test days.

Procedure

Adolescent Ethanol Administration. Mice were habituated to the laboratory for five days. Following habituation, mice were randomly assigned to one of two conditions: Ethanol ($n = 10$, 1.5 g/kg) or Saline ($n = 10$, equivolume to ethanol). Mice were weighed daily with a digital scale (Ohaus Navigator, Ohaus Adventurer SL) to determine body weight for the injections. Daily intraperitoneal (i.p.) injections of ethanol or saline were given to mice at the start of the adolescent period (approximately postnatal day 33). The range of adolescence in rodents has been accepted to be between the ages of postnatal day 28–42 (Spear, 2000). A total of nine, daily i.p. injections were administered. Following the injections, all mice were returned to their homecage. After the last injection day, all mice were left in their homecage until adulthood (approximately postnatal day 60).

Habituation to Activity Testing. Once both groups of mice reached adulthood, they were habituated to locomotor activity chambers (Dimensions: 27.9 cm x 27.9 cm x 29.5

cm, Med Associates, St. Albans, VT) in one 30 min session. During habituation, mice were placed inside the activity chambers and allowed to freely explore the environment. No injections were given to the mice during habituation. The following day, all mice (ethanol and saline adolescent groups) were weighed, given a saline injection (equivolume to a 1.5 g/kg ethanol dose) and tested for baseline locomotor activity (20 min). The saline injection was used to determine baseline locomotor activity and to acclimate the mice to the injection procedure prior to the ethanol activity testing.

Ethanol Locomotor Activity Testing. After the saline baseline test, all mice (ethanol and saline adolescent groups) were given 1.5 g/kg ethanol injection (i.p.) and immediately placed in the activity chambers for 20 min (Note: ethanol injections were selected as the route of administration to be consistent with previous sensitization studies; Phillips et al., 1994, 1995). Injections also provided rigorous experimental control over the ethanol dose that each animal was given. Total distance traveled (cm) was automatically recorded by Med Associates (St. Albans, VT) activity software. A total of four ethanol tests were conducted every two days (steps were taken to minimize pain and stress during the injection procedure by alternating the side of the body that the injections were given). A two-week break occurred after the fourth ethanol test as the authors attended an out-of-state student research conference and one author (DW) began preparation for final exams. Following the two-week break, three weekly activity tests were conducted, as a way to investigate the duration of the ethanol sensitization effect. Finally, a saline post-test was conducted (all mice received a single saline injection, i.p.) after the ethanol treatments to determine if the motor stimulating effects on the mice were a conditioned response rather than a pharmaceutical effect of ethanol.

Results

The mean (\pm Standard error of the mean, *S.E.M.*) locomotor activity in male, adult C57BL/6J mice as a function of test days is shown in Figure 1. The level of statistical significance for all analyses was set at $p < .05$. Effect size was calculated using partial eta squared (η_p^2). All data was analyzed using SPSS (Version 17.0).

saline Test. The mean baseline locomotor activity (cm traveled/20 min) of adult mice given ethanol or saline during adolescence was $M = 3571.84$ cm, *S.E.M.* = ± 229.92 and $M = 3212.62$ cm, *S.E.M.* = ± 146.50 , respectively. The saline baseline data was analyzed using an independent samples *t*-test. The analysis revealed no significant group differences during the saline baseline test, $t(18) = 1.31$, $p = 0.20$ (n.s.).

Ethanol Locomotor Tests. The ethanol-induced locomotor activity data were analyzed with 2 x 7 (Ethanol or saline during adolescence x Test day) Mixed-Design Analysis of Variance (ANOVA). The analysis indicated a significant test effect, $F(6, 108) = 18.69$, $p < 0.05$, $\eta_p^2 = 0.50$ (large effect), where mice in both groups increased locomotor activity across all test days. The ANOVA also showed a significant group effect, $F(1, 18) = 8.22$, $p = 0.01$, $\eta_p^2 = 0.31$ (large ef-

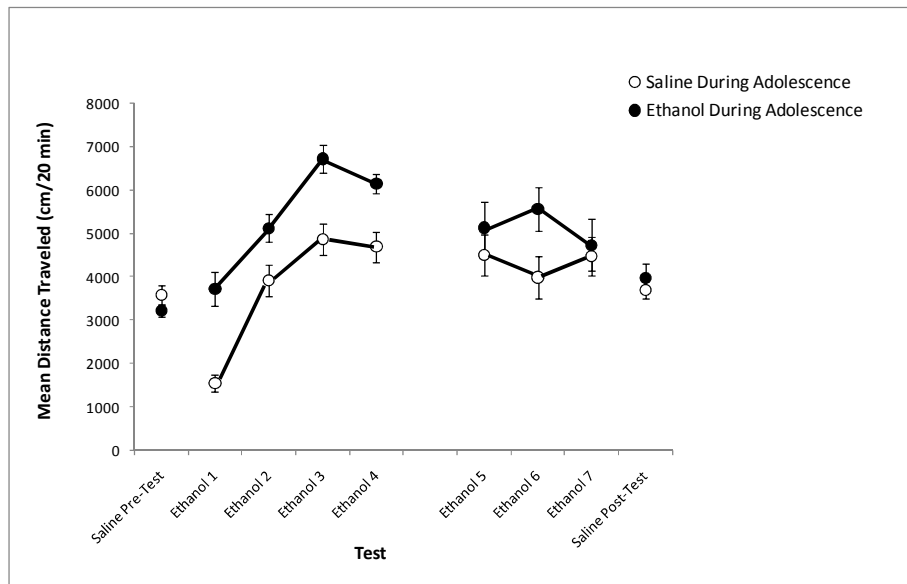


Figure 1. Data represents the mean (\pm S.E.M.) ethanol-induced locomotor activity in male, adult C57BL/6J mice given either saline ($n = 10$) or ethanol ($n = 10$) during adolescence.

fect), where adult mice given ethanol during adolescence ($M = 5306.45$ cm, $S.E.M. = \pm 285.78$) displayed significantly more locomotor activity than mice given saline during adolescence ($M = 3993.21$ cm, $S.E.M. = \pm 332.23$). The group \times test interaction did not achieve statistical significance, $F(6, 108) = 2.08$, $p = 0.06$. Although the interaction was not significant, the analysis appears to suggest that a larger sample size could increase the likelihood of finding a significant effect by increasing statistical power ($power$ was 0.73 for the interaction).

Saline Post-test. The mean post-test locomotor activity of adult mice given ethanol or saline during adolescence was $M = 3689.08$ cm, $S.E.M. = \pm 203.90$ and $M = 3976.91$ cm, $S.E.M. = \pm 335.87$, respectively. The saline post-test data was analyzed using an independent samples t -test. There were no significant group differences in locomotor activity during the saline post-test, $t(18) = -0.73$, $p = 0.47$ (n.s.).

Discussion

The hypothesis for the present experiment predicted that C57BL/6J mice given ethanol during adolescence would display an increase in locomotor activity in adulthood (i.e., behavioral sensitization) as compared to adult mice given saline during adolescence. The data from the present report show that the original hypothesis was supported with a significant increase in locomotor activity in adult C57BL/6J mice when given daily ethanol injections during the adolescence period (post-natal days 33-41) compared to adult mice that were only injected with saline in adolescence. Therefore, the present study's findings indicate adolescent ethanol exposure in C57BL/6J mice enhances behavioral sensitization, which is believed to underlie the physiological aspects of drug dependence (O'Brien, 2001).

The data from the present study are consistent with previous experiments showing behavioral sensitization to ethanol can be modeled in mice (Crabbe et al., 1992; Cunningham & Noble, 1992; Lister 1987; Masur & Boerngen, 1980; Phillips et al., 1994, 1995). We have extended the previous literature with the present experiment by showing that behavioral sensitization appears to be enhanced in C57BL/6J mice when ethanol is administered during adolescence development. Previous reports show that locomotor sensitization to ethanol can last for 23 days in female mice (Lessov & Phillips, 1998) and 58 days in males (Fish, DeBold, & Miczek, 2002). Although sensitization was found in the current study, there was no indication that the duration of the effect was as long as has been reported elsewhere. We utilized C57BL/6J mice in the present study, and longer sensitization effects are seen primarily in other mouse strains.

Several alternative explanations for the effects seen in this experiment may exist. One factor may be stress due to the injection procedure. Mice may display an increase in motor activity following a stressful event (i.e., handling/scruffing and injecting); however, mice in both treatment groups were handled and injected in a similar manner as only one experimenter (DW) performed the procedures. Whereas adult mice given saline in adolescence were also injected with ethanol as adults, only the mice given ethanol during adolescence displayed a significant increase above baseline activity. This finding suggests that ethanol produces an enhanced stimulant effect in mice that had previous exposure to the drug and is not due to a general stress response. Also, no significant group differences in motor activity emerged during the saline post-test, suggesting the motor effects are not stress-induced and are the result of the pharmacological effects of ethanol. Importantly, previous research indicates that many species of animals (including mice) display a freezing behavior when

confronted with stressful stimuli (LeDoux, 1995). Thus, under stressful circumstances, mice would likely freeze and be immobile rather than increase movement, as is reported in this paper.

Speculations on the biological mechanism influencing the sensitization process in mice are important. Behavioral sensitization to ethanol may be the result of a neuroadaptation within the dopaminergic system in the brain. Dopamine is an important neurotransmitter mediating pleasure and reinforcement (Schultz, 2006) as well as movement. Sensitization of dopamine activity occurs in psychostimulant drugs given repeatedly such as cocaine and amphetamine (Iversen & Iversen, 1981; Kalivas, Hooks, & Sorg, 1993; Robinson & Becker, 1986). Ethanol, like many drugs of abuse, activates dopaminergic neurons in the mesolimbic pathway, specifically in key reward centers such as the ventral tegmental area (VTA) and the nucleus accumbens (Gessa, Muntoni, Collu, Vargiu, & Mereu, 1985; Imperato & Di Chiara, 1986). In the present study, we speculate that ethanol exposure in adolescence may have caused heightened sensitivity of dopaminergic neurons in the central nervous system of the mice, which was expressed behaviorally as an increase in motor activity following ethanol administration in adulthood.

Clearly early exposure to ethanol produces a protection against the sedative properties of ethanol. Mice given ethanol during adolescence showed a tolerance to the sedative effects of the first ethanol injection in adulthood (see ethanol Test day 1 in Figure 1). In contrast, mice given saline injections during adolescence showed a dramatic sedative effect to ethanol when given the drug for the first time in adulthood (see ethanol Test day 1 in Figure 1). In all, these findings suggest that adolescent exposure to ethanol makes mice tolerant to the initial sedative effects of ethanol, which may in turn increase vulnerability to future use and abuse of the drug.

Finally, limitations exist in any experimental study. In our study, only a small number of mice were tested due to cost factors and the limited capacity of the mouse colony room. Even though a small sample was utilized, our results indicated significant effects, suggesting that there was adequate statistical power to detect group differences. Also, we only tested male mice so the enhancement of locomotor activity may not apply toward female mice. A replication of this experiment using female mice is warranted as female rodents appear to be more sensitive than males to the rewarding effects of drugs (Carroll, Lynch, Roth, Morgan, & Cosgrove, 2004). In addition, using different mouse strains would be beneficial. Future research should explore other inbred strains of mice used in ethanol research such as the DBA/2J and 129/SvEv backgrounds. Exploring these additional variables will lead to a more thorough characterization of ethanol sensitization in mice.

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Student Attitudes toward Politicians: Do Heuristics Overtake the Facts?

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Abstract

To investigate voting patterns during the 2008 presidential election, we conducted a 2 (participants' party affiliation: Republican, Democrat) x 2 (candidate: McCain, Obama) x 2 (platform: correct, switched) mixed-model quasi-experiment. College students read information from Barack Obama's and John McCain's platforms, but some participants received the platforms with the opposite candidate name attached. We expected students to use the heuristic of candidate's name and party when making voting decisions, rather than the issues being expressed in the platform. Results showed a consistent interaction pattern wherein Democratic participants supported Obama and Republican participants supported McCain, even when the candidates' platforms were switched. This pattern suggests that college students used the less effortful processing route within dual-process theories of attitudes to form political attitudes.

Keywords: heuristics, election, politics, voting

The 2008 presidential election included a record-breaking turnout of 24 million young voters ages 18 to 29 years, an increase of 2.2 million voters from the election in 2004 (Dahl, 2008). Although the amount of young voters may be increasing, still only approximately half of eligible young adult voters are heading to the polls compared to over 70 percent of voters ages over age 45 years (U.S. Census Bureau, 2009). Young adults in the current generation are also much less likely to vote compared to previous generations of young adults (Burgess, Haney, Snyder, Sullivan, & Transue, 2000). The youth vote will hopefully continue to increase in future elections, but if young people are voting in high numbers, one would hope their decisions are based on well-intentioned, thought-out views about what candidate would be best for the country, and not on peripheral information about candidates.

According to dual-process theories of attitude formation and persuasion, such as the heuristic systematic model (HSM) and the elaboration likelihood model (ELM), there are two ways in which individuals collect and interpret information when forming opinions: one much more effortless than the other (Chaiken, 1980; Eagly & Chaiken, 1993; Petty, Cacioppo, & Goldman, 1981; Petty & Wegener, 1998). The less cognitively difficult approach is labeled heuristic or peripheral processing. If following this cognitive route, individuals use simple rules or heuristics when forming opinions and focus on elements outside those central to the issue at hand. The second route employs a more cognitively effortful approach to information processing, called systematic or central route processing. This approach requires an individual to engage in a more extensive analysis of the content of the information he/she perceives. People following this cognitive path put in the extra effort to process more difficult information. These models suggest

multiple ways in which people may process information before heading to the polls, and suggest that when people are motivated they are more likely to take the effortful approach whereas unmotivated people take the less effortful, heuristic approach (Chaiken, 1980; Eagly & Chaiken, 1993; Petty, Cacioppo, & Goldman, 1981; Petty & Wegener, 1998)

Applying the HSM and ELM models to voting behavior, college students could use either method to make their decision. The types of voters who would likely use the systematic route to persuasion were the ones that Lau and Redlawsk (2006) identified as either "rational" voters, who actively seek information on all candidates and compare their positions to their own views, or "frugal" voters, who focus only on the issues that are of significance to them and disregard any other issues in a candidate's platform. Thus, rational or frugal voters would be persuaded to vote for a candidate by their agreement with a candidate on important issues as opposed to simply being persuaded by his/her political affiliation (Krosnick, 1988).

One might hope that this careful and reflective thinking is the way most voters make their political judgments; however, some citizens employ impulsive and effortless thinking instead. In Lau and Redlawsk's (2006) language, individuals can be either "intuitive" voters who take as many shortcuts as possible when gathering information, adopting viewpoints of peers they associate with, or "passive" voters who focus on the party affiliation of a candidate, giving no consideration to other factors that may alter their views.

Evidence for young voters passive voting techniques can be found in many sources. Kimberlee (2002) suggests young people feel disconnected and unconcerned with the issues raised by our traditional political parties because these issues do not seem to be self-relevant or engaging to young adults. Thus, young voters may have no politically relevant reason to favor one party over the other or to stay current on the issues (Kimberlee, 2002). In addition, the difficulty in understanding politics, especially for 20-year-old students who have never had the opportunity to vote in a presidential election before, may lead students to base their decisions on heuristics. Kimberlee (2002) also suggests the lack of role models under the age of 30 years old within the political system makes both politics and politicians remote and irrelevant to young voters. Finally, because politics are perceived to be irrelevant to many young people, students may not be politically aware. Kam (2005) found political awareness to be a significant predictor of which cognitive route of processing a student would follow: students who were less politically aware were more likely to use party cues, rather than issue-relevant knowledge, when forming opinions about partisan issues. In sum, it is likely that students do not view pol-

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itics as relevant and engaging, so they will most likely be less motivated or able to process all the political information they receive and become intuitive or passive voters.

Because students are generally new to the voting scene they may be unsure of what position to take on an issue, and may thus be more likely to adopt the beliefs of members of their families or the social groups surrounding them. Silvern and Nakamura (1973) discuss the socialization hypothesis as an explanation to students' political beliefs. This hypothesis suggests that family and primary social groups are the strongest influence on an individual's developing political identification. Therefore, rather than putting in the effort to actively pursue information on a candidate's stance, students may rely on the party affiliation of those around them when developing their own political opinions. Because of their disconnect with the political system, once students have looked to their parents or peers to develop political attitudes, they may associate with a specific political party and vote based on party affiliation alone (a "passive voter"). These intuitive and passive voters would be employing a less effortful heuristic approach by choosing a candidate regardless of their political stance.

The apparent apathy towards politics can lead to a general lack of motivation to decipher political information, which can then lead students to resort to using heuristic or peripheral processing (Chaiken & Maheswaran, 1994; Maheswaran & Chaiken, 1991). For example, young voters may depend on heuristics outside the information central to the message they perceive, such as media influence, to create their attitudes (Fournier, Blais, Nadeau, Gidengil, & Nevitte, 2003). The media can dictate which issues are important by focusing on certain topics when reporting about the candidates. Therefore, rather than forming their own opinions, students may also adopt the viewpoints promoted in the media and support the party affiliated with these viewpoints.

Another heuristic in voting attitudes is party affiliation. In support of this idea, Cohen (2003) conducted a study to demonstrate the influence of party affiliation on voter behavior. In Cohen's experiment, two versions of a welfare policy were given to college students. One version of the policy gave a more liberal perspective to the issue, whereas the other appealed to conservative views. Party support for the policy was also manipulated whereby half of the students were told the correct party affiliation, whereas the other half were led to believe the opposite party was affiliated with the policy. Results indicated the attached party affiliation had the strongest effect on reported support of the policy over the actual content of the policy itself (Cohen, 2003). Cohen's finding supported the original hypothesis that party affiliation plays an important role in making decisions about partisan issues (Kam, 2005).

The results of Cohen (2003) inspired us to conduct a similarly structured study through which students were asked to report their opinion of the two major candidates in the 2008 presidential election (Democrat Barack Obama and Republican John McCain) in late October and early November, im-

mediately prior to the election on November 4th, 2008 and during the time in which information about the two candidates was readily available. Participants were presented with the political platforms of both Obama and McCain; however, some of the participants received this information with the correct candidate name attached to each platform, and others received the platforms with the candidate names switched. Based upon review of the literature, we believed many college students would not be motivated to research the political standpoints of the candidates, and would therefore disregard a rational approach to decision making and instead base their voting decisions on heuristics. Like Cohen (2003), we hypothesized that party affiliation, expressed through candidate names, would have more of an influence on voter behavior than the actual political stances of the candidates. That is, when the candidate names were switched for the issues, voters would stay with their affiliated candidate even though the issues no longer reflected the correct views of the candidates, the participants' party, or (presumably) the participant him or herself.

Method

Participants

Using the introductory research pool as well as other psychology classes on the campus of the University of San Diego, 27 women and 3 men were recruited for this experiment for a total of 30 participants. The participants from the psychology participant pool voluntarily signed up online to partake in the experiment and received course credit toward their introductory psychology class. Participants from other psychology classes volunteered for no class credit. Participants ranged in age from 18 to 22-years-old ($M = 20.07$ years, $SD = 1.55$) and were of varied races (66.7% Caucasian, 10.0% Hispanic/Latino, 10.0% Asian, 3.3% African American, 3.3% Arab American, 3.3% Native American, and 3.3% other).

Procedure and Design

The study involved a 2 (participants' party affiliation: Republican, Democrat) x 2 (candidate: McCain, Obama) x 2 (platform: correct, switched) mixed-model design with candidate as a within-subjects factor. Each participant read the positions of the Republican and Democratic candidates for the 2008 presidential election on three separate issues: economic disparity, health care, and global climate change. Some articles contained the issues with the correct candidate name attached, whereas others were switched. The questionnaire following the information asked participants to report their opinions based on the information given about the various issues and the two candidates.

Materials

Participants' party affiliation. Participants were asked which party they affiliate with *most* between Republican and Democrat, recognizing that some students may prefer not to affiliate with either. Participants' answers to this question were used to determine each participant's party affiliation,

resulting in 23 Democrats and 7 Republicans.

Candidate and Platform. Participants were presented with the viewpoints of the Republican and Democratic candidate in the 2008 Presidential election: John McCain and Barack Obama. Participants read two separate platforms that included information on each candidate’s view for three political issues: global climate change, cost of health care and economic disparity. The information for each candidate’s view on these three issues originated from League of Women Voters Education Fund’s (2008) voter’s guide. See Appendix for the platforms. For approximately half of the articles, the candidate names were switched, thus presenting the participants with false information on the views held by each candidate. The other half received the information with the correct candidate names attached to each stance. Of the seven Republican participants, three were given the candidates with the correct platforms attached and four with the platforms switched, and of the 23 Democrats, 13 received the correct platforms and 10 the switched platforms.

Dependent variables. Participants reported their overall likeability of each candidate (from 1 *really dislike* to 6 *really like*), their overall agreement of each candidate’s competency (from 1 *strongly disagree* to 6 *strongly agree*), their overall agreement with each candidate’s positions (from 1 *strongly disagree* to 6 *strongly agree*), and how likely they were to vote for each candidate in the upcoming election (from 1 *extremely unlikely* to 6 *extremely likely*). The last three questions forced the participants to choose between McCain and Obama by asking participants to report which candidate they agreed with on each of the issues of economic disparity, global climate change and healthcare using a bi-polar scale (from 1 *strongly agree with McCain* to 6 *strongly agree with Obama*).

Results

We predicted that Republican participants would report a greater liking, competency, agreement with, and probability to vote for McCain, and Democratic participants would report the same tendencies toward Obama, regardless of the platform they received. To test this prediction, we ran a 2 (participants’ party affiliation: Republican, Democrat) x 2 (candidate: McCain, Obama) x 2 (platform: correct, switched) mixed-model ANOVA on each variable. If the predicted interaction between participants’ party affiliation and candidate was significant, we then computed simple effects of candidate for Democrats (*n* = 23) and Republicans (*n* = 7). Throughout the analyses, *p*-values less than .05 were considered significant. Descriptive statistics are reported in Table 1.

For overall likeability of each candidate, there was a significant interaction between participants’ party affiliation and candidate, $F(1, 26) = 15.00, p = .001$. All other effects for likeability were not significant, $p > .05$ for all comparisons. simple effects showed participants affiliated with the Democratic Party liked Obama significantly more than McCain, $F(1, 26) = 29.14, p < .001$. However, participants affiliated

	Candidate			
	Obama		McCain	
Political affiliation	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Likability				
Democrat	5.26	0.96	3.09	1.24
Republican	3.14	1.35	4.29	0.76
Competency				
Democrat	5.30	0.70	4.35	1.15
Republican	3.71	1.11	4.57	0.79
Agreement				
Democrat	4.96	0.82	3.83	1.19
Republican	3.43	1.40	4.29	1.25
Probability to vote				
Democrat	5.13	1.01	2.70	1.58
Republican	2.43	1.62	4.57	1.81

Table 1

Means and Standard Deviations as a Function of Platform and Participants’ Political Affiliation for the Ratings of Obama and McCain

with the Republican Party liked McCain and Obama equally, $F(1, 26) = 2.45, p = .13$.

Ratings of competency showed a main effect of participants’ party affiliation, $F(1, 26) = 5.26, p = .03$. However, this main effect was qualified by the significant interaction between participants’ party affiliation and candidate, $F(1, 26) = 10.65, p = .003$. No other effects for competency were significant, $p > .05$ for all comparisons. Simple effects showed participants affiliated with the Democratic Party thought Obama was more competent than McCain, $F(1, 26) = 12.38, p = .002$. On the other hand, participants who affiliated with the Republican Party rated McCain as equally competent as Obama, $F(1, 26) = 3.02, p = .09$.

There was a main effect of participants’ party affiliation on agreement with the candidates, $F(1, 26) = 7.15, p = .01$. However, this main effect was qualified by the significant interaction between participants’ party affiliation and candidate, $F(1, 26) = 4.62, p = .04$. No other effects for agreement

were significant, $p > .05$ for all comparisons. The interaction showed that participants affiliated with the Democratic Party agreed significantly more with Obama than McCain, $F(1, 26) = 7.24, p = .01$. Participants who affiliated with the Republican Party agreed equally with McCain and Obama, $F(1, 26) = 1.27, p = .27$.

Ratings of probability to vote for each candidate showed a significant interaction between participants' party affiliation and candidate, $F(1, 26) = 14.42, p = .001$. No other effects were significant, $p > .05$ for all comparisons. The interaction showed participants affiliated with the Democratic Party showed a significantly higher likelihood to vote for Obama than for McCain, $F(1, 26) = 18.78, p < .001$. Participants who affiliated with the Republican Party had significantly higher probability to vote for McCain than Obama, $F(1, 26) = 4.43, p = .05$.

The last three questions on the questionnaire asked about participants' agreement with the candidates on the specific issues of economy, health care, and climate using a bipolar scale, with agreement with McCain on one end of the scale and agreement with Obama on the other end of the scale. We hypothesized those participants who affiliated with the Republican Party would rate their agreement as lower (agreeing with McCain) than participants who affiliated with the Democratic Party (who would give higher ratings, agreeing with Obama). To test this hypothesis we ran a 2 (participants' party affiliation: Republican, Democrat) \times 2 (platform: correct, switched) \times 3 (issue: economy, health care, climate change) mixed-model ANOVA with issue as a within-subjects variable. There were no significant main effects or interactions containing issue, $p > .05$ for all comparisons, indicating that results were consistent across issues. There was not a significant main effect of platform, $F(1, 26) = 0.50, p = .49$. Neither was there a significant interaction between platform and participants' party affiliation, $F(1, 26) = 3.36, p = .08$. However, the main effect of participants' party affiliation was significant, as predicted, $F(1, 26) = 15.50, p = .001$. Regardless of platform, participants agreed more with the candidate of their party affiliation: Republicans agreed more with McCain ($M = 2.76, SD = 1.20$) and Democrats agreed with more Obama ($M = 4.67, SD = 1.08$).¹

Discussion

Our hypothesis, based on dual process theory of attitudes (Eagly & Chaiken, 1993; Petty & Wegener, 1998), stated that we expected students to consistently vote for the candidate of their affiliated party regardless of the issues attached

thereby using the heuristic approach. Using Cohen's (2003) heuristic effect, we predicted attaching candidate name to the platforms would cue party affiliation and influence how students formed their opinions. If participants had paid attention to the issues, there would have been an interaction between participants' party affiliation and platform because participants would have agreed with the candidate opposite their affiliation when the platform was switched. Our results show no such interaction. Instead, in support of our hypothesis, our results showed the predicted cross-over interaction between candidate and participants' party affiliation on each dependent variable, with no impact of the platform being paired with each candidate. Participants affiliated with the Democratic Party reported greater liking, competency, agreement with, and probability to vote for Obama as compared to McCain; whereas Republican participants were more likely to vote for McCain than Obama. As the significant interactions indicate, Republican participants responded to the candidates differently than Democratic participants, and although the simple effects for Republicans on liking, competency, and agreement did not reach statistical significance, the patterns suggest Republicans rate McCain higher than Obama on these variables. These non-significant findings are most likely because of the small number of Republican participants ($n = 7$) and with a larger sample we would expect these differences to also be significant. However, because our sample did not have a balance of Republicans and Democrats, further research is required before the impact of switching platforms can be ascertained for Republicans.

When asked to choose between Obama and McCain on bipolar scales, participants affiliated with the Republican Party showed greater agreement with McCain on the specific issues of economy, health care, and climate change, and those affiliated with the Democratic Party showed greater agreement with Obama, regardless of platform. Thus, participants took the less effortful approach and relied only on the heuristics provided by the party affiliation and candidate name to form their attitudes. Participants appeared to put in little analytical and cognitive effort to form their responses to the candidates, using Lau and Redlawsk's (2006) "passive voter" strategy. Our participants' tendency to continue their allegiance toward their party-affiliated candidate even when the attached issues reflected the opposite party's stance demonstrates the use of the less effortful approach when forming opinions.

Our switching the party platforms of the presented candi-

¹Because of violations of normality assumptions and the low number of Republicans in the sample, we also computed the results using nonparametric statistics. Because nonparametric statistics cannot test interaction effects, we had to compare the ratings of likability, agreement, competence, and probability to vote for each candidate in the correct and switched platform conditions for Republicans and Democrats separately. The Wilcoxon signed ranks test indicated no significant effects for Republicans, $p > .05$ for all comparisons, similar to the simple effects in the reported ANOVA results. However, for Democrats, all comparisons between ratings of Obama and McCain in the correct platform condition were significant, $p < .03$ for all comparisons, and the comparisons for likability and probability to vote were also significant in the switched platform condition, $p < .03$ for all comparisons. For agreement with the candidate and competence in the switched platform condition, the differences between ratings of Obama and McCain were only marginal, $p < .09$ for all comparisons. These results indicate that there was likely little to no interaction between candidate and platform, given that there were significant or marginally significant differences in ratings for Democrats across all conditions. For the analysis of the bi-polar scales of agreement with the three issues, we computed the Mann-Whitney test for Republicans and Democrats separately comparing the correct and switched platform on each issue. The tests indicated no significant differences in agreement between the correct and switched versions of the materials, $p > .05$ for all comparisons, which is what we predicted. Because our predictions relied on interactions and the comparisons of Republicans and Democrats, we present the ANOVA results in the main text.

date did not influence participants' responses to the candidates. One reason why students may not have been influenced by the switched information is that they relied on previously created attitudes toward the two candidates. Students had likely formed attitudes about Obama and McCain based on what they previously knew about the two candidates. With the actual election looming in the near future, participants' desired candidate for President was fresh in their minds. Participants could have remembered a candidate's view on issues as presented by the media and upon seeing these issues as headings on the questionnaire, put these heuristics into motion. In doing so, participants who had the switched article type would have reported preferences inconsistent with their actual political views. This practice could be explained by the peripheral approach because participants put in little effort to come to a decision – their attitudes were not influenced by the new information given to them. By focusing on previously formed attitudes, participants may have disregarded the questionnaire directions asking them to answer the questions based on the information they had just read about the candidates.

One limitation of our study was the lack of inclusion of a condition without any party affiliation information attached to the platforms. This type of control condition would have forced students to rely on the positions presented instead of candidate name and would have required the use of a more effortful approach in making their decisions. Without this condition we do not know if the differences in the candidate platforms were too subtle for students to tell the difference. However, the issues were selected as representative of the Democratic and Republican Party and were switched without changing their content. We believe our results are, in fact, evidence that people do not pay close attention to platform stances and instead give more focus to the name attached, playing into heuristics and supporting the less effortful method of processing information.

As mentioned earlier, young adults, such as students, are new to voting and may not yet understand the political world; this naiveté in turn could have a negative influence on their motivation to vote because politics appear to be confusing and overwhelming leaving students unwilling to put in the effort to decipher a candidate's true intentions (e.g., Kimberlee, 2002). However, one question left unanswered by the current study is when and why people may take the more effortful approach. Motivation, in the form of personal involvement or high importance, has been shown to increase use of the systematic route to persuasion (Chaiken & Maheswaran, 1994; Maheswaran & Chaiken, 1991). If we could measure for motivation in our participants by adding different questions or using different scales on the questionnaire, we might be able to measure the motivation level in our participants. This methodology would help us see which participants, out of the pool as a whole, are more likely to be using the systematic route. For example, people with internal mindsets, when compared to individuals with an external mindset, think they have more control over their future and take a direct approach when influencing what will happen

(Blanchard & Scarboro, 1973). Blanchard and Scarboro (1973) found that individuals with an internal mindset take an active approach when it comes to voting in an election because they see their vote as having a direct effect on the outcome of the election, whereas those with an external mindset are less likely to vote because they believe their vote would not matter. Thus, because an internal mindset causes an individual to see their vote as actually having an impact, a student who has such a mindset may be more motivated to process political information at a deeper level and use the systematic approach. Based on this idea, in our study, an internal mindset might lead an individual to pay more attention to what the platforms are saying and see a contradiction if the names have been switched. Including a measure of internality and externality in the future would test the impact of this personality variable on participants' motivation and use of heuristics.

In summary, participants in our study did not use the platform presented to them in voicing their opinion of presidential candidates John McCain and Barack Obama. Switching the two candidate's platforms did not influence participants' reactions to the candidates; rather, Democratic participants liked and agreed with Obama and Republican participants tended to like and agree with McCain, regardless of the platform they were paired with. Our results demonstrated how students make political decisions based on heuristics such as party affiliation instead of candidate's stances on issues such as the economy, healthcare, and climate change. However, a candidate's stance on an issue represents the change they promise to make if elected and should therefore play a crucial role when voters form a political opinion. Thus, it is important that voters pay attention to more than the candidates' affiliated party. Our study provided support for the claim that students use the less effortful, heuristic process in making decisions about voting and hopefully highlights the importance of educating students about politics. Increasing political awareness amongst students would reduce the likelihood of students basing their votes on cues, such as party affiliation, and would instead allow the facts to outweigh heuristics.

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Appendix A

McCain's Platform

GLOBAL CLIMATE CHANGE:

I support developing a cap-and-trade system to reduce greenhouse gas emissions 60% by 2050, providing tax credits for alternative energy, promoting zero-carbon nuclear power, reducing the federal government's carbon footprint, funding research into clean-coal technology, and offering incentives for America's automobile industry to develop electric cars.

COST OF HEALTH CARE:

Under my plan, American families will receive \$5,000 tax credits to purchase insurance, either through employers or the private market—insurance that can follow them if they change jobs or leave the workforce. I will work for reforms to lower costs and provide coverage to Americans with pre-existing conditions.

ECONOMIC DISPARITY:

We must spur growth, create jobs, improve educational attainment, and enhance financial security. My plan will keep income and payroll taxes low, reduce the price of gas, double the dependent exemption, bring down health-care costs, give deserving homeowners new fixed mortgages, slash our high business taxes, and expand trade.

Obama's Platform

GLOBAL CLIMATE CHANGE:

I believe the federal government should pursue multiple paths to reduce greenhouse gas emissions and address the threat of global climate change, including implementing aggressive cap and trade requirements to reduce U.S. emissions by 80% from 1990 levels and investing heavily in clean energy and advanced vehicle technologies.

COST OF HEALTH CARE:

My healthcare plan will make aggressive investments in cost-cutting technologies and will place more focus on prevention and chronic care management. The net result will be to bring down the costs of healthcare spending by \$2,500 for a typical family, annually, and lower the expense of Medicare's services.

ECONOMIC DISPARITY:

I will cut taxes for the middle class and roll back some of the Bush tax cuts for those making over \$250,000 to restore fairness to the tax code. I will make long term public investments in R&D, clean energy, infrastructure, and manufacturing to create millions of good-paying jobs.

Effect of Television and Video Games on Adolescent Aggressive Behavior

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Abstract

Prolonged exposure to violence through television and video games has produced two problems affect adolescents. The first problem is media exposure causes desensitization to real life violence, in turn leading to lower moral self-limits. This desensitization results from adolescents confusion and inability to distinguish between acceptable fantasy and unacceptable real world behaviors (Williams, Robbins, & Picton, 2006). Secondly, the media promotes violence as justified in order to achieve one's goals. Television and video games have become an important part of adolescents' lives the mere thought of doing without them is inconceivable. Adolescents often learn by mimicking observed behavior. In our current culture, a major portion of what they learn comes from television and video games. These visual mediums have replaced more traditional forms of recreation such as sports, playground activities, and family outings. Although, the stronghold television and video games have in the educational experience of adolescents is alone an issue worth addressing, coupling this issue with the negative influence of violence on television and in video games reveals a much larger problem than first thought.

Keywords: television, video game, violence, adolescence, aggression

Television violence and violent video games have become increasingly popular in homes, schools and communities across the United States. This media exposure is especially devastating to young children and adolescents who are already vulnerable because of emotional, social, and cognitive difficulties. Banbour (1999) suggested the American media is the most violent in the world. Adolescents spend much of their time engrossed in television, video games, and music, many of which promotes extreme violence (Banbour, 1999). Research review supports the notion media teaches adolescents violent behaviors, devalues human life and downplays the consequences of violent behavior. The media promotes the image of the world as a dangerous place and in order to survive, one needs to be dangerous.

The vast amount of time that adolescents now spend engaged in violent video games that have gone from passive to active participation is one possible explanation for an increase in teen violent tendencies. This increase is particularly interesting because the active level of participation now takes young adolescents one step closer to committing violent acts (Banbour, 1999). According to Banbour, media violence causes real-life violence by teaching adolescents that aggressive behavior has few consequences for them or their victims. The average adolescent in America will witness several hundred thousand violent acts through the media according

to Banbour. Additionally, many adolescents believe the world is a dangerous and mean place, and thus they need likewise to be dangerous and mean.

According to Herr (n.d.), 99% of all American households have at least one television in the home, with the average number of television sets per United States household equal to 2.24. Furthermore, according to Nielsen ratings (cited in Herr, n.d.), Americans watch four or more hours of television per day. When we include the time spent with DVD players, DVRs, and computers, the number of hours per day steadily increase even more. Clearly, television and video games occupy a large portion of the average American's life. We learn an abundance of positive and useful information from television, but exposure to negative influences such as excessive violence and aggressive behavior exists as well.

Kronenberger et al. (2005) studied the differences reported in exposure to television violence and video games among groups of adolescents with and without disruptive behavior disorder in relation to aggressive features. Kronenberger et al.'s (2005) study revealed 27 of 54 adolescents aged 13 to 17 years old were diagnosed with disruptive disorders with aggressive features. The control group, the other 27, had no contact with a mental health professional within the past three years and was free of any diagnosed mental disorder. The study excluded individuals with an IQ of less than 70. Kronenberger et al. interviewed the individuals for self-reported media (both television and video games) exposure for the prior week and for the past year. The reported media exposure for the past year was recorded to determine media violence exposure scores. Findings suggested that individuals with diagnosed disruptive disorders with aggressive features had statistically more aggregate exposure to media violence than those in the control group. Kronenberger and colleagues provided evidence linking media violence and real-life aggressive behavior. The design of the study enabled the authors to show that IQ and sex are not significant variables affecting this connection. The results of the study provide supporting evidence to the link between media violence exposure and aggressive behaviors.

Huesmann, Moise-Titus, Podolski, and Eron (2003) conducted a longitudinal relations study between the early childhood watching of TV violence and its relation to adult violent tendencies. Huesmann, et al. revisited 450 individuals, now in their early twenties, who were part of an earlier study (15 years prior) that investigated the effects of early childhood television violence and childhood aggressive tendencies. Using personal interviews (interviews of the individuals themselves as well as those who knew them best), and archival public data, Huesmann and colleagues scored the

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test participants on various violence variables such as frequency of verbal aggression, frequency of mild aggression, number of moving traffic violations, and number of criminal records. Their results showed a positive correlation between early childhood viewing of television violence and adult aggression for both male and female participants. The study also revealed early childhood identification with aggressive television characters and the childhood belief that television violence reflected real life correlated highly with adult aggressive behavior. These relations exist regardless of child's intellectual ability, socioeconomic status, or parenting type.

Similarly, according to Hopf, Huber, and Weib (2008), long term effects result from the impact of media violence exposure during childhood than other developmental periods. In particular, Hopf et al. claim early exposure to media violence causes violent beliefs, student violence and violent delinquency in the early teenage years. They performed a two-year longitudinal study based on a cross section of German public school students, and found the more frequent children viewed horror and violent films during childhood and the more frequent they played violent video games in the beginning of their adolescence, the higher these students' violence and delinquency would be at the age of 14 years. The initial questionnaires asked each 5th through 7th grade student about the frequency of his/her media violence exposure. Two years later, the questionnaires evaluated each student's attitude toward violence as well as delinquent behaviors. The questionnaire given by Hopf and colleagues asked students about aggressive behaviors (e.g., their participation in a fight or in vandalizing a vending machine). The results indicated a strong correlation between the impact of media violence exposure during childhood and later adolescent aggressive behavior. Also, Hopf et al. utilized a multi-factorial regression analysis. By viewing media in the context of important variables such as sex, age, media violence, exposure to parental violence, and student violence, a validation of their original finding was made, claiming a connection exists between childhood exposure to media violence and aggressive adolescent behavior.

Vidal, Clemente, and Espinosa (2003) studied the degree of acceptance pertaining to media violence by young individuals, and also revealed some emotional and cognitive effects of media violence exposure. They studied 203, 13-year-old Spanish students (66.5% boys, 33.5% girls). The boys and girls viewed three 15 min video clips: (a) one representing action without violence, (b) one with socially justified violence, and (c) one with socially unjustified violence. For individuals who did not watch a lot of television a more drastic change in their acceptance of violence was noticed. These researchers' data support the hypothesis teenagers who spend more time watching television accept violence more readily than those who do not spend time watching television.

Funk, Baldacci, Pasold, and Baumgardner (2004) studied 150 4th and 5th grade students from the United States with an average age of approximately 10 years of age. The students completed various questionnaires about violence and their frequency of exposure to different violent situations. Accord-

ing to Funk and colleagues, a relation exists between the frequency of real-life violence exposure, media violence exposure, and desensitization to violence. Desensitization to violence is apparent when a lack of emotion to violent situations occurs, situations that should normally elicit strong emotional reactions, or when a belief in the inevitability of violence is inevitable.

Williams et al. (2006) sent a questionnaire to 1,133 public school students (536 boys, 597 girls), aged between 13 and 15 years. The questionnaire asked participants how much television they watched (none to four hours or more) and questioned their belief in dead harming people in reality. Twenty-six percent of the participants who watched four or more hours of television per day believed the dead can harm in real life, versus 18 percent of the participants who watched less than four hours of television per day. These researchers found a positive correlation between high frequency television viewing and the belief in the dead causing harm. Williams and colleagues concluded the data indicate violent television viewing affected individuals' perception of reality. Specifically, individuals become more prone to violence in real life and were unable to distinguish between real life and fantasy.

Coyne and Archer (2005) sought to study the long-term effects of televised indirect aggression. They studied 347 public school students, 188 boys and 159 girls, aged between 11 and 14 years. They selected this age group because earlier studies indicated that real life indirect aggression peaked during these ages (Björkqvist, Lagerspetz, & Kaukiainen, 1992). Participants in the Coyne and Archer (2005) study listed their favorite television shows (these shows were separately coded as to the amount of indirect aggressive behavior content), and how many hours they watched. Coyne and Archer's research demonstrated a connection between sex and indirect aggression. Specifically, girls who watched a lot of indirect aggression on television acted with indirect aggressive behavior in real life according to their peers. Also of interest, a higher level of physically aggressive behavior viewed on television was unrelated to real life physically aggressive behavior. This result was contrary to previous studies, and suggests that other variables, not accounted for, are affecting results. The results reported by Coyne and Archer (2005) provide a good starting point for research on indirect aggression effects caused by the media.

Feshbach and Tangney (2008) investigated variables moderating the influence of exposure to television violence. These variables include race, culture and sex. Feshbach and Tangney conducted a longitudinal study of 4th, 5th and 6th grade students. Students were surveyed concerning their television viewing behavior completed a self-report listing their aggressive behaviors. Mothers and teachers also listed their observations concerning these children's aggressive behaviors, delinquency and cruelty. According to the researchers, both sex and race influence the link between the amount of violent television exposure and aggressive behaviors. Specifically, they reported a correlation between the amount of violent television viewing and aggressive behaviors for Cau-

casian boys and for both Caucasian and African American girls. However, they failed to find a similar correlation for African American boys. Feshbach and Tangney propose speculative causes for this result such as television shows providing African American boys with more positive feelings versus aggressive feelings. African American boys feel inhibitions toward actual aggression due to fear of punishment, or more time watching television means less time acting out aggressive behaviors.

Addressing media violence has become increasingly important for today's society. Browne and Hamilton-Giachritsis (2005) examined public research evidence of media violence on children from a social policy perspective. These two researchers claim evidence exists between violent imagery in media, and aggressive or fearful behavior in young children. These factors include an individual's exposure to real life violent backgrounds and the personality traits of individuals who are predisposed to aggression. Current research does not show strong evidence of the relation between violent media exposure and actual criminal behavior. Browne and Hamilton-Giachritsis suggest that additional research is needed to confirm whether a stronger link between these two variables can be made. From a public health perspective, Browne and Hamilton-Giachritsis (2005) suggest both parents and caregivers actively monitor media violence exposure. They also suggest parents and policy makers need to provide children with education on media violence to help the children differentiate between reality versus fantasy worlds. Finally, they suggest through education, media content producers recognize the adverse effects of media violence and that ultimately the media industry self-moderates its content.

Analysis has revealed exposure to violent video games increases physiological arousal and aggression-related thoughts and feelings. According to Anderson & Bushman, (2001), playing violent video games also decreases prosocial behavior. Anderson and Bushman developed the General Aggression Models (GAM) based on several earlier human aggression models (Anderson, Henry, Later, & Swaim, 2003). The GAM is useful for understanding the effects of violent media. Three variables used in GAM are represented by the effects on a participant's cognitive state, emotional state, and level of physical arousal (Anderson & Bushman, 2001). This model is based on learning, activation, and applications of aggression-related knowledge structures stored in the brain's memory. Recent exposure to violent video games exerts influence on a person's internal state. Violent video games teach players to be aggressive through learned aggressive practices, arousal of aggressive tendencies, and the creation of a state of mind susceptible to violent behavior. As observations of interactions with violent video games increase, violent behavior becomes more acceptable to the players. Each interaction is, in effect, another learned process that over time becomes part of a person's learned behavior (Anderson & Bushman, 2001).

Violent video games require participants to rehearse and practice violent acts repeatedly, which increases players propensity to commit violent acts. Killing or destroying property

often results in reward and winning (Carll, 2007). This learning process involves rewards and identification with characters who commit violent acts. The intensity and realistic experiences portrayed in the games intensifies the learning process (Carll, 2007). Further studies by Carll suggest that violent video games increase violence toward women. Sexual aggression toward women is often depicted humorously in violent video games, and the acceptance of these violent acts reinforces objectification of women.

According to Peipenbrink (2008), participating in violent video games teaches adolescents that violence is an acceptable way of life in society. In addition, violent video games often portray a distorted view of real life, and can influence adolescents to defy authority figures. Violent video game players often display a more negative attitude and disrespect of parents or authority figures. Instead of promoting healthy behavior in adolescents, violent video games glorify killing, stealing, and desensitize adolescents to violence. Research suggests repeated exposure to violent video games stunts growth and development in the portion of the brain responsible for making moral decisions, learning and moral judgment. Peipenbrink (2008) noted violent images become less shocking and result in a lack of empathy for human suffering and death.

Conclusion

Those who view violence in the media as a growing problem will not be please with the fact that television and video games are a billion-dollar business. The adverse effect of television and video games on adolescents has triggered more awareness to a growing problem in our society. Adolescents are easily influenced and may have difficulty understanding the difference between fantasy and reality. Adolescents, learn by observing and mimicking others behavior. Aggressive behavior is a learned behavior, with some youth being more predisposed to violence than others. Research reviewed in the present paper indicate playing violent video games, and watching violence on television, increases aggressive behavior.

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Homosexuality Acceptance in a Jesuit Midwestern University

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Abstract

We examined attitudes and acceptance toward homosexuality among students at a Midwestern Jesuit university. In order to measure acceptance, we created four vignettes. Each vignette described a recent college graduate who had a good job, and lived in a good neighborhood. The vignettes were uniform except the sexual orientation and gender of the individual varied. After reading the vignette, participants answered seven Likert-type questions designed to gauge their approval of the character's lifestyle choices including the character's sexual orientation. In agreement with past studies, women felt more warmly towards homosexual characters in relation to men. Our results indicate, in contrast to our expectations, religion and religious devoutness did not play a role in participants' views of homosexuality.

Keywords: homosexuality acceptance

There are 7.2 million gay and lesbian Americans under the age of 20 years in the United States (McCoy, Wibbelsman, Stover, Grady, & Rourke, 1999). Homosexuality acceptance varies across the nation just as poverty levels, political affiliation, and level of education do. Though many individuals believe attitudes towards homosexuality are generally accepting, this opinion is not always evident (Reinhardt, 1997). In the United States, homosexuality is not completely accepted by a substantial segment of the population. In fact, recent laws restricting marriage to only heterosexual couples indicate this lack of acceptance (McCoy et al., 1999). Little research has focused on the attitudes of college students toward homosexual individuals. Further, the majority of research does not examine what factors help to create and predict the formation of negative attitudes toward homosexuals. Therefore, the questions addressed in this study were (a) what variables predict attitudes about sexual minorities, (b) what are the attitudes of college students towards gays and lesbians, and (c) what variables can point to strategies that might reduce prejudice about homosexuality? To answer these, we asked participants specific questions regarding their gender, political affiliation, religion, religiosity, age and ethnicity.

Though little research has been conducted in relation to homosexuality acceptance among college students, other age-groups have been investigated. College students, on average, are more accepting of homosexuality than the general population. In fact, studies have shown that undergraduate students show significantly more positive attitudes towards homosexuality as compared to the general population (Lambert, Ventura, Hall, & Cluse-Tolar, 2006). The authors found relations between a person's education level and acceptance of homosexuality. That is, the more years of educa-

tion of person has, the more accepting he or she is of homosexuality. Additionally, when Lambert et al. (2006) controlled for the effects of personal characteristics such as sex, age, religion, political party affiliation, and race, they found upper-level students (i.e., juniors or seniors) have more positive and open attitudes towards homosexuals than lower-level students (i.e., freshman or sophomores). Their results also indicated that the majority of students were willing to interact with gay or lesbian individuals as long as the contact did not become too personal or intense. Interestingly, of participants surveyed, 36% believed homosexuality was wrong.

Other studies have demonstrated women as more accepting of homosexuality than men and religiosity, in addition to sex, is an important factors in predicting negative attitudes towards homosexuality (Hinrichs & Rosenberg, 2002). For example, Hinrichs and Rosenberg (2002) conducted a survey among six liberal arts colleges by mailing surveys to students. Specifically, these researchers examined a large number of factors to examine influences on participants' attitudes toward sexuality including: sex, age, year in school, if the participants' college had Greek letter organizations, what type of housing the school offered, participants' sex role attitude, and knowledge of and contact with lesbian, gay, bisexual, and transgender (LGBT) persons, and participant religiosity. Hinrichs and Rosenberg found women with lower religiosity and liberal sex-role attitudes were significantly more likely to show positive attitudes towards LGBT persons across all measures as compared to men. Furthermore, they found that within schools that had Greek organizations, male members of Greek organizations were less tolerant than were non-Greek students. When comparing participants attending schools with Greek organizations to those attending schools without Greek organizations, no difference was seen in homosexuality tolerance (Hinrichs & Rosenberg, 2002). Additionally, results from this study indicate men and women were less tolerant of gay men than lesbians. The data collected supported past findings that sex-role attitudes, religiosity, sex, Greek letter organizations, and contacts with LGBT individuals are most important in predicting negative attitudes toward the LGBT community (Hinrichs & Rosenberg, 2002).

Maher, Sever, and Pichler (2008) examined the influences of religiosity and participants' sex on acceptance of homosexuality by students attending Catholic universities. Maher and colleagues found attitudes toward homosexuality relate to attitudes regarding sexuality and Church authority. However, personally knowing a gay or lesbian person was a major factor in increased acceptance of homosexuality. Furthermore, Maher and colleagues (2008) found the majority of young Catholics were more inclined to not only accept

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homosexuality, but to question Church authority and teaching on homosexuality. Older generations of Catholics were much less likely to accept homosexuality than young Catholics. Hence, these authors argue, with each new Catholic generation, homosexuality acceptance will most likely increase.

Interestingly, Stotzer (2009) studied how positive attitudes develop towards homosexuality. He interviewed students at a public, Midwestern university and found students with positive attitudes towards homosexuals typically came from diverse communities. Other results indicated the students with positive attitudes towards homosexuality believed society viewed homosexuals negatively. Stotzer attributed the formation of students' positive attitudes to experiences of normalization, empathy, or resistance towards homosexuality. Participants who lived in areas where gay, lesbian, and bisexual individuals were a part of their social experiences had strong positive attitudes towards homosexuality. For example, half of the participants considered their parents' positive attitudes towards homosexuality or beliefs in equality to be significant influences on their positive attitudes towards homosexuality (Stotzer, 2009). Experiences where participants felt empathy for struggling homosexual peers or viewed unwarranted peer resistance to homosexuals fortified their already held positive attitudes. Participants who did not already hold positive attitudes towards homosexuality and experienced empathy to or peer resistance towards homosexuals believed their attitudes were revolutionized to be more positive towards homosexuality. Parents, community, and experience contributed to normalizing homosexuality for participants and fostering positive attitudes towards homosexuality.

Similarly, Horn (2006) studied the relation between environment and attitude towards homosexuality of adolescent students. Adolescent and young-adult students educated at schools more supportive of gay, lesbian, and bisexual individuals than schools not supportive of gay, lesbian, and bisexual individuals had higher positive attitudes towards homosexuality. In this case, students' schools became a normalizing medium, exposing students to homosexuality. Just as participants' communities in Stotzer's (2009) research exposed them to homosexuality, Horn's participants' exposure to homosexuality acceptance was an influence in their positive attitudes towards homosexuality.

In addition, Herek (2000a) studied men's and women's feelings towards homosexuality. The majority of the male and female participants felt negatively towards gay men and lesbians. Interestingly, women expressed higher comfort ratings with homosexuals than men, but both men and women were the least comfortable around homosexuals of their same-sex (Herek, 2000a). Male participants' attitudes toward lesbians rated more positive than their attitudes toward gay men (Herek, 2000a). Similarly, further research conducted by Herek (2000b) found levels of sexual prejudice are higher in heterosexual men than in heterosexual women. This finding may be due to fear of homosexuals or homosexuality because it is inconsistent with peoples' personal values.

Review of the previously cited studies demonstrates personal characteristics like religiosity, sex, and liberal views can be predicting factors of a person's acceptance of homosexuality. The current study examined whether students' religiosities were more predictive of their overall approval of homosexuality than other characteristics such as age, political affiliation, where students grew up, and gender. We believed religious affiliation and devoutness would be the largest indicator of homosexuality acceptance in our study due to the pool of participants enrollment in a Catholic University. Though Maher et al. (2008) indicated increased acceptance of homosexuality among younger generations of Catholic students as compared to older generations, we believed religious devoutness would still be the strongest predictor of acceptance or lack thereof. In addition, we believed sex and other factors within our study would provide further support for past studies that indicate women and students with more liberal political views would be more accepting of homosexuality.

As students attending a Jesuit school, we are intrigued by how accepting religious students are of homosexuality on a Catholic campus. We postulated that students' religiosity would be reflected in their attitudes towards homosexuals due to previous researchers' demonstration increased church attendance correlated with negative attitudes towards homosexuality (Reinhardt, 1997). However, we recognize that students' acceptance of homosexuality will be generally high because of their level of education (Lambert et al., 2006). Also, we predicted students who rate themselves as having high religiosity would show overall less acceptance of homosexuality. Furthermore, we predicted: women would be more accepting of homosexuality, participants with liberal political views would be more accepting of homosexuality, and participants from urban areas would be more accepting of homosexuality. These hypotheses reflect reviewed literature, detailed above, indicating sex, religiosity, and political views are predictive factors of homosexuality acceptance.

Method

Participants

The young adult participants ($N = 41$, $M = 20.03$ years, 68.3% women) were students attending Creighton University who received course credit for participating. The undergraduates were predominately Caucasian and middle-class. Parents/guardians gave permission for their student to participate if the student was under 19 years of age.

Materials

We used four vignettes, each depicting a normal day in a fictional character's life. We described the character as being successful at his/her marketing job, having graduated top in his/her class in college, and as a diligent worker. The vignettes differed only on sex and sexual preference of the character. Throughout the vignette we referred to the characters as he or she after originally being named Jessica or John. Only at end of the vignette was the character's sexual preference implied by stating the character would meet his/her

boyfriend or girlfriend after work. Participants read only one of the four vignettes, and then rated their overall approval of the character. On the approval sheet we asked them if the character was successful, how warmly they felt towards the character, how warm society feels towards the character, if they would be friends with the character, if the characters' friends and family approve of the character's lifestyle, and whether the character was a good person using 1-10 and 1-100 scales of agreement or warmth. Participants then completed a demographic form about themselves (e.g., religious affiliation, religiosity, where they are from [city and state], political views, age, and sex). Examples of our vignettes and corresponding questions can be found in the Appendix.

Procedures

We tested participants in small groups in a quiet psychology lecture room on the university's campus. Once students had completed an informed consent form or given their parents' approval (if under 19 years) we allowed them to sit at any desk with the study materials in front of them. The vignettes were randomly assigned to participants, as the order of vignettes was random and the assignment of specific vignettes to each participant was also random.

We instructed participants to not touch the study materials until we told them to do so, which occurred after all participants had given consent to participate form and found a seat. We informed participants to first flip over the cover paper and read about a character, then fill out a questionnaire rating the character. In addition, once they completed reading the vignette and rated the character, they were to flip to the next page and answer demographic questions. We told them to read the entire vignette before rating the character and emphasized they should not move on to the second page until they had read the vignette and rated the character.

On the second page, participants rated their religiosity among other demographic details such as age, sex, where they are originally from, political views (i.e. liberal, moderate, or conservative), and religion. These demographic details served as quasi-independent variables used to examine participants' approval of one of four vignette characters. We allowed participants 30 min to finish reading the vignette, rate the character, and answer demographic questions. Once participants finished, they turned in their packet and were

given a debriefing hand-out and a course credit form before they exited.

Results

Initially, we performed a 2 (character sex) x 2 (character sexual preference) x 2 (participant sex) ANOVA and found that there was no interaction between the sex of our vignette character, the character's sexual orientation, and the participant's sex. However, we did see a marginal effect of the character's sex on how warmly the participant felt towards the character, $F(1, 32) = 3.11, p = .087$. We found that the male vignette characters received an average warmth reading of 70.17, whereas the female vignette characters received an average warmth reading of 80.50. The average warmth felt towards the heterosexual character was the lowest of the four characters at approximately 19 points below the average warmth rating for the heterosexual female and homosexual male and female characters.

We then ran correlations for the variables (personal warmth, success of character, being friends with character, family approval, warmth of society, character a good person) collapsed across all the characters and for each character separately. These correlations are enumerated in Tables 1-3.

We found no difference in warmth felt toward the character when controlling for sexual orientation or sex, $F(1, 36) = 1.33, p > .05$. We found a marginal influence of sexual preference on whether participants believed the character was successful, $F(1,36) = 3.38, p = .074$. A marginal interaction was discovered between the character's sex and sexuality in the rating of success of the character, $F(1, 36) = 3.81, p = .059$. No difference in sexual preference on success for women existed, but people viewed homosexual men as more successful with an average rating of 8.55 than heterosexual men ($M = 7.62$). We found a significant effect of the character's sexual preference on rating of societal warmth, $F(1, 36) = 6.98, p < .05$. Participants rated heterosexual men higher on societal warmth ($M = 77.50$) than homosexual men ($M = 60.00$), $t(17) = 2.30, p < .05$. Although we found no significant difference in how participants rated heterosexual versus homosexual women characters, a trend was revealed from the data indicating participants rated heterosexual women higher on societal warmth ($M = 85.00$) than homosexual females ($M = 70.00$), $t(19) = 1.59, p = .128$.

We found a difference in how much people wanted to be

Table 1

Correlation matrix for responses collapsed across four vignette types.

Variable	1	2	3	4	5	6
1 personal warmth	—	.61*	.85*	.51*	.28	.47*
2 success of character		—	.63*	-.84	.41	.46*
3 being friends with character			—	.15	.21	.37*
4 family approval of character				—	.51*	.00
5 warmth of society					—	-.34
6 character good person						—

* $p < .05$

Table 2

Correlation coefficient matrix for responses based on heterosexual and homosexual (in parentheses) male characters

Variable	1	2	3	4	5	6
1 personal warmth	—	.65 (.67*)	.97* (.74*)	.53 (.25)	-.46 (.28)	.65 (.79*)
2 success of character		—	.59 (.67*)	.82* (-.23)	.05 (.14)	.71* (.23)
3 being friends with character			—	.51 (.16)	-.60 (.18)	.64 (.46)
4 family approval of character				—	-.14 (-.15)	.00 (.07)
5 warmth of society					—	-.19 (.32)
6 character good person						—

* $p < 0.05$

Table 3

Correlation coefficient matrix for responses based on heterosexual and homosexual (in parentheses) female characters

Variable	1	2	3	4	5	6
1 personal warmth	—	.49 (.74*)	.50 (.90*)	.56 (.81*)	.51 (.88*)	.16 (.24)
2 success of character		—	.09 (.75*)	-.04 (.30)	.29 (.48)	.43 (.35)
3 being friends with character			—	-.02 (.78*)	.14 (.87*)	-.09 (.27)
4 family approval of character				—	.64* (.87*)	-.45 (.00)
5 warmth of society					—	-.51 (.17)
6 character good person						—

* $p < 0.05$

friends with the character depended on the character's sex and sexual preference. Participants wanted almost equally to be friends with homosexual men and all women with average ratings of 7.82 and 7.68, but wanted to be friends with heterosexual men less ($M = 6.00$). Results also revealed marginal differences in ratings of how family and friends would approve of the character depending on the character sex, $F(1, 36) = 3.81$, $p = .059$. Participants were more approving of women when collapsed across sexual preference, $M = 7.98$ for women and $M = 7.13$ for men.

We also found a significant effect of sexual preference on how participants rated family and friend approval of the characters, $F(1, 36) = 12.80$, $p < .05$. Heterosexual men and women had higher ratings of family approval with average ratings of 8.25 and 8.40, whereas homosexual men and women had lower ratings of family approval with average ratings of 6.00 and 7.55. Overall, we found a trend regarding participants' ratings of their family and friends approve of females and male characters depending on the sexuality of the character $F(1, 36) = 2.59$, $p = .117$.

Finally, differences emerged in societal warmth ratings between liberals, moderates, and conservatives, $F(2, 21) = 4.29$, $p < .05$. Participants who rated their political affiliation as liberal rated societal warmth towards homosexuals higher, ($M = 85.00$) than conservatives' ratings of societal warmth towards homosexuals ($M = 62.86$), and moderates who rated societal warmth towards homosexuals ($M = 53.33$). A pairwise comparison in ratings of societal warmth between the political groups revealed a significant difference between liberals and moderates, $t(13) = 2.86$, $p < .05$, a marginal dif-

ference between liberals and conservatives, $t(11) = 1.97$, $p = .075$, and we found no difference between moderates and conservatives.

Discussion

We conducted a study of Catholic University students' approval of homosexuality to determine relations with students' personal characteristics (e.g., sex, hometown, religiosity, and political affiliation) using four vignettes with varied sexual orientation and gender. Our use of vignettes as an indirect measure of attitudes toward homosexuals was unique to past research because previously participants were aware researchers were rating homosexuality acceptance and many studies asked straightforward questions about personal homosexuality acceptance. We, however, wished to measure implicit attitudes towards homosexuality by discreetly indicating the character's sexuality and not informing participants that the study was measuring homosexuality acceptance. Our results indicate that high religiosity and conservative political views did not significantly affect acceptance of homosexuality. Rather, results indicated students, overall, were accepting of homosexuals; however, participants did express family approval and societal warmth toward homosexual characters lower than their own acceptance. A consistent trend emerged between political affiliation and societal warmth: progressives rated societal warmth significantly higher than moderates and conservatives. Additionally, our student revealed conservatives as rating societal warmth slightly higher than moderates. Finally, we found that students were more likely to be friends with homosexual men and women than heterosexual men. We

hypothesized Creighton University students would generally be accepting of homosexuality because previous research demonstrated education level positively correlates with attitudes towards homosexuality. Our results confirmed this hypothesis; participants rated warmth towards homosexuality high, illustrating positive feelings toward the characters. In contrast, participants rated societal warmth towards the homosexual characters significantly lower than their rating of warmth towards the homosexual characters. Stotzer (2009) found participants believed society was not as accepting as they were, and our results further support this claim.

We also believed female students at a Catholic University would be more accepting of homosexuality than male students. Our results for men and women's acceptance of the homosexual characters did not differ significantly. Perhaps our participant ratio of men to women (i.e., 13:28) may have created this lack of difference. Additionally, we hypothesized student's approval of homosexuality would be affected by their religiosity. However, our results indicated religious affiliation and religiosity did not affect participants' approval of homosexuality. Specifically, we had many participants who rated themselves as moderately or highly devout, but this rating did not relate to lower feelings of warmth toward homosexual characters.

Furthermore, we predicted politically liberal students would be more accepting of homosexuality than conservative and moderate students. In contrast, our results were not conclusive. The results did indicate that students with liberal political views believed societal warmth towards the homosexual characters was higher than did moderate and conservative students. Students with moderate political views rated societal warmth towards homosexuals lower than did conservatives. We believe the difference between liberal participants' rating of societal warmth and conservative participants' rating of societal warmth was due to personal beliefs. Politically conservative individuals tend to be conservative in other aspects and therefore less inclined to approve of the controversial issue of homosexuality. In contrast, no influence of participants' political views was found on societal warmth towards heterosexual characters most likely because heterosexuality is widely accepted.

We hypothesized correlations between students' hometown (rural vs. urban) and their acceptance of homosexuality, but our results showed no relation between a participant's hometown and level of homosexuality acceptance. Typically, rural communities are less diverse, which could indicate less exposure to homosexuality. According to Stotzer (2009), normalizing of homosexuality was a strong indication of positive attitudes towards homosexuality. We expected that rural areas would have less normalization of homosexuality into their culture leading participants from rural areas to be less accepting; however, our participants from rural and urban areas did not differ in acceptance of homosexuality.

In support of our hypothesis, female participants felt equally as warm towards the heterosexual and homosexual charac-

ters, but male participants felt more warmly towards the heterosexual characters than the homosexual characters. We also found the more successful the participants rated the characters, the more likely they would be friends with the character, the higher they rated family approval of the character, and the greater their feeling of warmth towards the character. Participants rated higher family approval of heterosexual characters than homosexual characters. Additionally, participants rated lower societal warmth towards homosexual characters when compared to their own personal warmth.

Although we had many interesting findings, the majority of our results did not support our hypotheses; this discrepancy was most likely due to our relatively low number of participants. There were over twice as many women than men in our study, which may have prevented us from finding differences between female and male participants. The low level of participation may have also lead to lack of diversity between participants making it difficult to measure religious, political, and hometown differences in homosexuality acceptance. Though we did not find evidence that related religiosity to homosexuality acceptance, we did find intriguing results when comparing societal warmth to personal warmth in addition to examining the influence of political affiliation and sex differences in feelings of warmth towards homosexual characters.

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Appendix
Examples of Vignettes and Accompanying Questionnaires

Daily Routines – A

John is a 25 year old college graduate who has recently been promoted to be an account manager at a marketing firm. He graduated top in his class and upon graduation was quickly presented with many job opportunities. On a typical day, John wakes up early and runs through his local community park then quickly gets ready for a full day of work. He usually spends his mornings brainstorming and implementing new marketing ideas with fellow colleagues. After lunch, John often attends multiple meetings with his superiors, and usually leaves work at about six o'clock. He usually meets his long-time girlfriend for dinner in the downtown area of their city and they return home together to watch their favorite television shows.

Daily Routines – B

Jessica is a 25 year old college graduate who has recently been promoted to be an account manager at a marketing firm. She graduated top in her class and upon graduation was quickly presented with many job opportunities. On a typical day, Jessica wakes up early and runs through her local community park then quickly gets ready for a full day of work. She usually spends her mornings brainstorming and implementing new marketing ideas with fellow colleagues. After lunch, Jessica often attends multiple meetings with her superiors, and usually leaves work at about six o'clock. She usually meets her long-time boyfriend for dinner in the downtown area of their city and they return home together to watch their favorite television shows.

Daily Routines –C

John is a 25 year old college graduate who has recently been promoted to be an account manager at a marketing firm. He graduated top in his class and upon graduation was quickly presented with many job opportunities. On a typical day, John wakes up early and runs through his local community park then quickly gets ready for a full day of work. He usually spends his mornings brainstorming and implementing new marketing ideas with fellow colleagues. After lunch, John often attends multiple meetings with his superiors, and usually leaves work at about six o'clock. He usually meets his long-time boyfriend for dinner in the downtown area of their city and they return home together to watch their favorite television shows.

Daily Routines –D

Jessica is a 25 year old college graduate who has recently been promoted to be an account manager at a marketing firm. She graduated top in her class and upon graduation was quickly presented with many job opportunities. On a typical day, Jessica wakes up early and runs through her local community park then quickly gets ready for a full day of work. She usually spends her mornings brainstorming and implementing new marketing ideas with fellow colleagues. After lunch, Jessica often attends multiple meetings with her superiors, and usually leaves work at about six o'clock. She usually meets her long-time girlfriend for dinner in the downtown area of their city and they return home together to watch their favorite television shows.

Corresponding Questions after Each Vignette

Instructions: For the following questions, please indicate your response using the scale directly below the question.

1. (Character's Name) is a successful person

Completely Disagree	No Opinion	Completely Agree
1 2 3 4	5 6	7 8 9

2. How warmly do you feel towards (Character's Name)

Cold	Luke Warm	Warm
0 10 20 30 40	50 60 70 80	90 100

3. How warmly do you think society feels towards (Character's Name)

Cold	Luke Warm	Warm
0 10 20 30 40	50 60 70 80	90 100

4. Would you be friends with (Character's Name)

Not Likely	Somewhat Likely	Very Likely
1 2 3	4 5 6 7	8 9

5. Will (Character's Name) friends and family approve of her lifestyle

Completely Disapprove	No Opinion	Completely Approve
1 2 3 4	5 6	7 8 9

6. (Character's Name) is good person

Completely Disagree	No Opinion	Completely Agree
1 2 3 4	5 6	7 8 9

Treatment Methods in Adolescent Self-Cutting

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Abstract

My research examines the literature on self-cutting among adolescents. Overall, the existing literature focuses on causes for self-cutting; however, limited research adequately examines the possible treatments for adolescent self-cutters. The existing research identifies Problem-Solving Therapy and Dialectical Behavior Therapy as two potential treatments for self-cutting; however, both treatments require additional research to determine the most successful treatment for self-cutting behavior in adolescents. Problems include an underrepresentation of men in treatment-based research, as well as the tendency for treatment to be administered in a way that generalizes all self-cutting patients, regardless of the reasons behind a patient's behavior. I discuss in this literature review: the uses of these two treatments within adult and adolescent populations, the implications of ignoring motivational factors, as well as possibilities for future research.

Keywords: self-cutting, adolescence, Problem Solving Therapy, Dialectical Behavior Therapy

Self-cutting is the most common form of self-mutilation used by adolescents today (Brown, Houck, Hadley, & Lescano, 2005); however, self-injury is described in a number of different ways in the literature. *Non-suicidal self-injury* (NSSI) refers to "the deliberate destruction or alteration of body tissue to inflict self-harm and pain but without conscious intention to commit suicide" (Cheng, Mallinckrodt, Soet, & Sevig, 2010, p. 128). The same definition is also used for *self-mutilation*; however, self-mutilation can also include burning, carving, hair pulling, inserting objects under the skin, and scratching (McDonald, 2006). Some studies use the term *deliberate self-harm* (DSH) to describe the act of self-hitting or self-cutting (Izutsu, et al., 2006). An estimated 14% of adolescents have engaged in some form of NSSI (Swenson, Spirito, Dyl, Kittler, & Hunt, 2008). For the purposes of this paper, I will refer to *-self-cutting* as the "deliberate act to destroy one's own body tissue without a conscious intent to die...with any instrument, other than tattooing or body piercing" (Laukkanen et al., 2009, p. 24). Self-cutting is therefore interchangeable with the term NSSI, but does not include behaviors encompassed in other terms, such as hair pulling or self-hitting.

According to McDonald (2006), adolescents who suffer from bipolar disorder, anxiety, and depression are all at risk of exhibiting self-cutting and self-cutting may be an indicator of Borderline Personality Disorder. Other factors leading to self-cutting include oppositional/conduct problems, substance abuse, and suicidal ideation (Swenson et al., 2008). Environmental factors also can predict self-cutting; mainly childhood abuse, as this type of abuse can lead to problems with emotional regulation (Heath, Toste, Nedecheva, &

Charlebois, 2008). Regardless of which underlying factors may lead to self-cutting behaviors, this behavior typically occurs as a means to release tension, establish control, or to express anger.

Although self-cutting is a noted and dangerous behavior, not much is known about how to successfully treat self-cutting in adolescents. Two kinds of therapy have been used with self-cutters; Problem-Solving Therapy (PST; D'Zurilla & Goldfried, 1971) and Dialectical Behavior Therapy (DBT; Linehan, 1993), and whereas both have had some success, much can be improved upon (Muehlenkamp, 2006). Little research has been done using these therapies on adolescent self-cutters, but what does exist is inconclusive, as no treatment has proven to be entirely successful for all cases (Craig & Foster, 2009). In addition, some patients dislike how the current therapies are administered, criticizing some counselors do not treat patients as individuals; rather, they generalize all cases and fail to acknowledge the reasons behind each patient's cutting behavior (Craig & Foster, 2009).

Many studies have found self-cutting to be more prevalent in adolescent women than in men (Cheng et al., 2010; Laukkanen et al., 2009; Swenson et al., 2008); however, men do participate in self-cutting and thus, self-cutting among men should not be ignored. Unfortunately, literature centering on treatment of self-cutting either focuses specifically on women (e.g., Craig & Foster, 2009) or makes no distinction between men and women receiving treatment (e.g., Hayakawa, 2009; Muehlenkamp, 2006). The lack of empirical work done on male self-cutters is problematic, as the information obtained about female self-cutters may not be directly applicable or beneficial to the male population.

Although the literature on adolescent self-cutting treatment is limited, but the use of PST and DBT with adult self-cutting samples has shown some promise. Although the effectiveness of these therapies on adolescent samples is now being investigated, this research is still in its early stages. In this paper, I discuss the literature on cutting treatment for all populations, treating adolescent self-cutting specifically, the importance of emphasizing the reasons behind the cutting behavior during therapy, as well as the directions for future research.

Treatment

Aforementioned previously stated, two kinds of cognitive behavioral therapy have shown to be successful in treating self-cutters: PST and DBT, both of which focus on helping patients identify problems, understand different coping strategies, and learn to change and accept themselves sim-

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ultaneously (Muehlenkamp, 2006). Specifically, PST focuses on the problem-solving process of the patient, as a cognitive or behavioral breakdown in their problem-solving process is usually seen as the cause of their poor coping behaviors (Muehlenkamp, 2006). The correction of these behaviors is usually done in a therapy setting in which counselors teach patients different steps in the problem-solving process, including problem identification, goal setting, and brainstorming, as well as the process of choosing better coping solutions (i.e., assessing potential solution, selecting and implementing a solution, and evaluating its success; Muehlenkamp, 2006). The assumption of PST is that self-cutting behaviors stem from poor problem solving and these behaviors can therefore be solved with a collaborative effort between the counselor and patient.

Similarly, DBT works at finding successful coping strategies for self-cutters, but its spectrum of treatment is broader than PST. DBT's main goal is to find a balance between encouraging the patient to change and to accept him or herself at the same time. NNSI behaviors are meant to be reduced, but treatment is also used to create a lifestyle in which the patient can come to terms with the motivational obstacles they may face during treatment (Muehlenkamp, 2006). DBT is broken into three different hierarchical stages: reducing cutting behavior, finding more adaptive ways of coping, and developing and maintaining self-respect while learning how to successfully using learned skills (Muehlenkamp, 2006). Stage one and two share similarities with PST, as tools used include problem solving-techniques and coping strategies. However, as previously stated, DBT treatment is wider in spectrum, implementing behavioral analyses of self-injurious behavior, behavioral skills training in mindfulness, emotion regulation, distress tolerance, and contingency management strategies (Linehan, 1993). DBT also can occur outside of the classic counselor-patient session with the use of individual therapy, group skills training, and phone coaching (Muehlenkamp, 2006).

The use of both DBT and PST on self-cutters has yielded some positive results. Many studies using PST also employ a mixture of additional cognitive, interpersonal, or behavioral elements in addition to the PST (Muehlenkamp, 2006). This quasi version of PST has been shown to successfully lower rates of self-injury (Evans et al., 1999). A meta-analysis evaluated the effectiveness of PST on reducing incidences of NNSI and found that PST successfully reduced feelings of depression and hopelessness (Townsend et al., 2001). However, despite the success of PST in these studies, the majority of participants in those studies were adults, leaving the level of effectiveness of PST for adolescent self-cutters unclear.

Eskin, Ertekin, and Demir (2007) applied PST to an adolescent sample. At the 12-month follow-up after therapy, participants' depression and suicide-risk scores within the PST group decreased significantly and their self-esteem and assertiveness scores increased significantly, while the scores of the participants in the control group remained the same in all categories (Eskin et al., 2007). When assessed by the Beck Depression Inventory and Hamilton Depression Rating

Scale, a significantly higher number of participants within the PST condition achieved a "full or partial recovery" compared to participants in the control group (Eskin et al., 2007). Unfortunately, information on specific instances of self-cutting behavior is not known, which means that PST's effectiveness in reducing self-cutting behavior was not directly assessed in this study. Future research should have an additional focus on self-cutting rates, both before, during, and after therapy in order to attain a better grasp of PST's effectiveness in reducing these behaviors.

DBT has also been shown to successfully reduce self-cutting (Comtois, Elwood, Holdcraft, Smith, & Simpson, 2007). In addition, DBT has shown to reduce dissociative experiences, depression, suicide ideation, and impulsiveness (Low, Jones, Duggan, Power, & Macleod 2001). However, like the majority of PST experiments, studies using DBT very rarely focus on a specific age group, which again creates difficulty in drawing conclusions regarding effective treatments for adolescent self-cutters.

In one of the few studies done using DBT with adolescents, some solid conclusions were made, but other questions still remain. Using an adolescent psychiatric inpatient population, DBT was administered to one group of patients whereas "treatment as usual" (TAU), which lacked a behavioral therapy component, was administered to another group. In the DBT group, behavioral disturbances on the ward were reduced and fewer patients dropped out of the program compared to the participants in the TAU group (Katz, Cox, Gunasekara, & Miller, 2004). Thus, not only may DBT be helpful to adolescents who self-cut, but it may also be something the patients can easily identify with, and therefore actively choose to participate in. Whereas behavioral disturbances were significantly reduced in the DBT group, both groups showed some reduction in self-cutting. This result suggested the behavioral therapy aspect of DBT may be useful in reducing behavioral outbursts in general; however, DBT may not have as large of an effect on self-cutting behavior itself.

In summary, with both PST and DBT in adolescent samples, depressive thoughts may be better reduced using these therapies and positive thoughts and compliance may be increased by them; however, the extent to which actual self-cutting behaviors are attenuated by PST and DBT is unclear. Despite the two aforementioned studies done with adolescent samples, the literature suggests effective treatment therapies for adolescent and young adults is far less investigated than it is for adults (Eskin et al., 2007). Thus, the need for further adolescent-based research investigating the effectiveness of these therapies on reducing self-cutting behavior is needed.

Counselor-Patient Relationship

The most important aspect of treatment for self-cutting behaviors, regardless of the type of therapy used, can be seen as the counselor-patient relationship (Muehlenkamp, 2006). The counselor must form a solid relationship with the patient, resulting in the patient feeling as though the counselor does indeed feel his or her pain, and once this trust is estab-

lished, the relationship between the counselor and the patient is able to produce a more successful treatment (Trepal & Wester, 2007). Few studies have examined the patients' experiences with treatment to examine whether or not the patients agree.

Addressing the need for the patient's viewpoint on therapy, Craigen and Foster (2007) interviewed ten young adult women after counseling sessions regarding self-injury. In terms of the counselor, three helpful behaviors were identified; listening, understanding, and acting as a friend. Believing his/her counselor is a friend was noted as the most powerful aspect of therapy, as the majority of the women attributed it to their eventual recovery. On the other hand, two unhelpful behaviors were also identified: a lack of understanding and forcing ideas upon the patients. One woman reported not feeling "unique or particularly cared about" when the counselor made a remark that he or she had seen this "a hundred times" (Craigen & Foster, 2007, p. 83). In these situations, the patient might believe the counselor is simply generalizing her situation, rather than treating her as an individual. At the very least, a counselor needs to come to an understanding regarding individual circumstances. People will have slightly different reasons behind their behavior, and their therapy sessions should be reflective of that.

Therapy should begin with an attempt by the counselor to understand the reasoning behind the patient's self-cutting behavior. Whether patients' behavior is performed out of anger, sadness, to release anxiety, to prove their existence, as a cry for help, as an addiction, or for other reasons, these motivations should be taken into account when considering specific treatments for each individual. Although the research literature cannot address each patient on an individual basis, the counselor should not imply that the patient is simply another cutting case (Craigen & Foster, 2007). Focusing only on the cutting behavior during therapy, rather than the underlying issues at hand, was seen negatively by the patients in Craigen and Foster's (2007) study. Failing to conceptualize cutting as a symptom of an underlying problem was detrimental to therapy, which seems to further support the idea that the motivations of the patient should be emphasized during treatment, rather than only the behavior itself.

Although PST and DBT may both be effective tools for counselors to build upon in therapy, not every patient will effectively respond to these therapies without some flexibility in treatment. "Therapies should be multi-modal and have standardized interventions shown to be effective in treating specific aspects of the disorder, yet still be flexible enough to be tailored to the individual needs of the client" (Muehlenkamp, 2006, p. 180). The counselor must treat each client as a unique individual, even when using techniques generally recommended by the literature. Cognitive-behavioral therapies can provide the basis for treatment, but the specifics of treatment need to be based upon each client and his/her own unique circumstances; most notably, the reasons behind his/her self-cutting behavior.

Conclusion

Although the causes behind self-cutting and other forms of self-injury have been examined (e.g., McDonald, 2006), treatment for adolescents who exhibit these behaviors remains relatively unclear. Cognitive-behavioral therapies have been proposed, but few studies exist for adolescent self-cutters, and even fewer have data concerning the effectiveness of these therapies in reducing self-cutting behavior specifically. Counselors are an integral part of therapy for self-cutters; however, much can be improved according to patients. The underlying reasons for the cutting behavior need to be addressed in therapy rather than solely focusing on the cutting behavior. Moreover, more research should be done with male participants. Whereas women are more likely to self-cut than are men, men may feel more uneasy about expressing their self-cutting behaviors or participating in treatment. Future research should be conducted using adolescent samples and should focus on reducing self-cutting behaviors for both men and women. Counselors ought to implement cognitive based treatments recommended by the literature, but focus their therapy on the underlying reasons for the patient's behavior, rather than simply on the behavior itself.

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Impact of Social Support and Social Support Networks on Life Crises for Expatriates

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Abstract

With present study, I investigated whether expatriates living in Mallorca, Spain would seek support during a life crisis differentially based on holding an individualistic or collectivist orientation. Participants surveyed answered questions regarding: demographic information, support received from their family, friends, and community, cultural orientation, the helpfulness and effectiveness of support received during a life crisis, and type of support received. Individualistic expatriates reported seeking support from family and community members but not friends. Collectivist expatriates reported seeking support from family and friends but not community members. Collectivist expatriates rated support received as more helpful and effective than individualistic expatriates. Results suggest expatriates seek support differently based upon cultural orientation, and collectivist expatriates benefit more than individualistic expatriates from support received during life crises.

Keywords: expatriates, social support, life crises

Under stress, individuals rely on those around them for social support, which can act as a buffer against both physical and mental illness (Bolger & Amarel, 2007; Cohen & Wills, 1985). Individuals who do not live in their native country (e.g., immigrants, sojourners, expatriates, etc.) have an increased difficulty accessing the support networks they had at home (Caligiuri & Lazarova, 2002; Downie et al., 2007). Support received from traditionally close networks, such as family, can be mitigated by pressures of incorporating the new cultural identity with the established culture (Downie et al., 2007). Although adjusting to a new culture can be a stressful experience, I was interested in investigating the role of social support for expatriates (i.e., citizens of another country who reside in a host nation) when going through an extremely stressful life crisis (e.g., divorce, death of a parent, job loss, etc.). Moreover, I was curious how expatriates find the social support they need during a life crisis.

Under stress, individuals turn to the available networks, which may include family, friends, and community networks (Caligiuri & Lazarova, 2002; Lin, 1986). For expatriates, choosing a support network might be affected by their cultural individualistic or collectivist orientation (Kim, Sherman, Ko, & Taylor, 2006). Collectivists value harmony within interpersonal relationships as more important than self-interests; whereas, individualists value personal achievements as more important than identifying with one's group (Brewer & Gardner, 1996; Markus & Kitayama, 1991; Singelis, 1994). If expatriate collectivists define themselves by their interpersonal relationships, then these individuals might be more likely to receive support from friends and

family (some of whom may live in their home country) but not receive support from community members, because these community members are not considered to be a part of their interpersonal identity. If expatriate individualists' primary motivation is self-interest, then, under stress, these individuals might rely on familial support to attend to their interpersonal needs. However, because of physical proximity expatriate individualists may turn also to community members and rely less on friends with whom they have less need for interpersonal closeness. The present study, therefore, tests the hypothesis that support received during a life crisis would be perceived as more helpful and effective for collectivists who rely on their support network for relational needs than for individualists who rely on their support network for personal needs.

Expatriate Use of Social Support

Expatriates and sojourners are defined as individuals who live in a foreign country for an extended amount of time for reasons related to a specific task (e.g., education, work, etc.) and retain citizenship from their country of origin (Church, 1982; Swagler & Jome, 2005). Research on expatriates/sojourners has been mainly focused on cross-cultural adjustment to the host nation (Caligiuri & Lazarova, 2002; Church, 1982; Downie et al., 2007; Swagler & Jome, 2005). However, no study has comparatively investigated to whom expatriates turn (e.g., friend or family member) when going through an extremely stressful time. No study, furthermore, has investigated which types of support expatriates received and the degree of helpfulness or the effectiveness of these types of support.

Levels of social support. Previous research has identified sources of support that have been effective at overcoming cultural adjustment, such as family (Downie et al., 2007) and host national colleagues (Caligiuri & Lazarova, 2002). These authors, however, have not looked at the psychological mechanisms related to social support and how these mechanisms help expatriates overcome a particularly stressful time. Research on expatriate social support, moreover, has operationalized social support as social interactions with other expatriates relevant to their cultural adjustment (e.g., Caligiuri & Lazarova, 2002). This definition, however, does not consider each of these sources is just one part of the expatriates' social environment (Lin, 1986). The social envi-

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ronment approach to defining social support includes three levels: the macro level-or the community, the mezzo level-such as co-workers and friends, and the micro level-or intimate and confiding relationships (Lin, 1986). Including these levels in the definition of social support provides a clear picture of how expatriates receive social support and how these interactions influence expatriates' adjustment and use their social networks while living in their host nation. Researchers, for example, have investigated the effects of perceived community support and found that early community support is associated with a decrease in depressive symptoms over time (Herrero & Garcia, 2007). Although community support is an important factor in reducing stress, expatriates have more complicated social environments than non-expatriates. For example, interactions at each level in the social environment could be as basic as a fellow expatriate recommending a good place to eat or as complicated as a family member back home providing comfort to the expatriate following the death of a child (e.g., via internet video communication).

Types of social support. Current expatriate research has outlined coping strategies that better facilitate adjustment, such as knowledge of the host national language and overall cultural competence (Stahl & Caligiuri, 2005). Social support in the form of receiving culturally relevant information, for example, plays an important role in cultural adjustment. Regarding the overcoming of a life crisis, research on social support in general has outlined the effectiveness of different types of social support (Vaux & Athanassapoulou, 1987; Wadkins, 1991). These types of support include tangible, appraisal, self-esteem, and belongingness support (Wadkins, 1991; Vaux & Athanassapoulou, 1987). Tangible support is defined as practical or financial assistance. Confiding in someone regarding one's problems defines appraisal support. Support characterized by downward comparison (i.e., comparing problems to a worse situation) is termed as self-esteem support. Being available for companionship comprises belongingness support. Tangible and self-esteem support have been found to be more effective for challenging situations than for threatening situations (Wadkins, 1991). These authors, however, have not investigated the helpfulness and effectiveness of receiving these types of support during a life crisis, or a potentially long-term and life-changing, difficult event. A life crisis is not a transitory, temporary event, thereby clarifying the main difference between a life crisis and a challenging or threatening situation. Whereas these situations may be challenging and threatening, they are much more chronic than a temporary threat and challenge in everyday interactions.

Individualism/Collectivism

Individualism and collectivism are traditionally thought of as two distinct cultural orientations (Markus & Kitayama, 1991). An individualistic orientation, for example, emphasizes uniqueness and personal achievement, whereas collectivism emphasizes connectedness with the social context (Markus & Kitayama, 1991). Singelis (1994) argued both orientations can exist in the same person as two self-

construals (i.e., how a person views the self in relation to others). For cultural orientations existing in the self, Singelis (1994) termed an individualistic orientation as an independent self-construal, emphasizing one's personal abilities and feelings, uniqueness, and goal promotion. Collectivist values existing in a person's self-image are termed as an interdependent self-construal, promoting a person's status and relationship with others, fitting in, and engaging in context-appropriate behaviors. Because cultural values are important for influencing a person's self-image, self-construals emphasizing independence and interdependence can exist in the same person (Singelis, 1994; Triandis, 1989). A person, for example, may have many interdependent traits, few independent traits, and vice versa. A range of individualism and collectivism, therefore, can exist in any population, with some populations being predominately individualistic or collectivist (Singelis, 1994).

Although many researchers have investigated cultural orientation, social support, and expatriate/sojourner adjustment separately, research is limited on support-seeking behaviors in expatriate populations from either collectivist or individualistic backgrounds (e.g., Caligiuri & Lazarova, 2002; Downie et al., 2007). Some researchers have investigated differences in support-seeking behaviors for individuals who ethnically belong to traditionally individualistic (e.g., Europe) and collectivist (e.g., Asia) cultures (Kim et al., 2006; Markus & Kitayama, 1991). Kim and her colleagues (2006) found Korean American college students were less likely to seek social support than European American college students. Korean American students who sought social support, moreover, evaluated support received more negatively than European American students. According to Kim and colleagues, collectivists do not want to disturb the nature of their social network and are, therefore, less likely to seek support, whereas individualists actively use their social network as a stress-reduction mechanism.

Individuals who report higher collectivist traits report less support seeking behavior from their primary social network (e.g., Kim et al., 2006). When placed in an environment where the primary support network is absent (e.g., when living as an expatriate), however, collectivists may change their behavior toward using more individualistic tendencies and rely more on their primary support network, not yet establishing another support network in their current place of residence. Expatriates who report higher individualistic traits may continue to rely on their primary support network, but because their primary support network is proximally distant, these individuals may turn to support networks that are more readily available (e.g., Brewer & Gardner, 1996; Markus & Kitayama, 1991). Because their interpersonal needs are met by seeking their primary support network and proximally close network, individualistic expatriates may rely less on intermediate level support.

The Present Study

In the present study, I examined support seeking behavior during a life crisis for collectivist and individualistic expatri-

Table 1
Descriptive Statistics for Demographic Items

Age	54.14 ± 14.70	Nationality of spouse	
Years lived in Mallorca	12.77 ± 9.19	British	13
Sex		Spanish	3
Men	9	German	3
Women	26	Indian	2
Marital status		American	1
Single	1	Austrian	1
Living with partner	3	Dutch	1
Married	25	French	1
Divorced	2	New Zealander	1
Widowed	4	Swiss	1
Nationality of self		Have children	32
British	14	Have 1 child	9
Spanish	4	Have 2 children	11
American	3	Have 3 children	10
German	3	Have 4 children	2
French	2	Have no children	3
Indian	2		
South African	2		
Swiss	2		
Danish	1		
Dutch	1		
New Zealander	1		

Note: Frequencies or mean ± standard deviation values, as appropriate.

ates. Specifically, this research examined: who expatriates turn to for support, what type of support expatriates receive, and how effective expatriates perceive such support. I hypothesized during a life crisis, collectivist expatriates seeking support would turn to the primary networks (i.e., family and friends) and be less likely to seek support from proximally near networks (i.e., community). I also hypothesized in order to reduce their stress, individualistic expatriates would be more likely to seek support from their primary network (i.e., family) and proximally near networks (i.e., community). Because their need for support would be met by relying on family and community, I hypothesized individualistic expatriates would to rely less on intermediate level support (i.e., friends). Furthermore, I hypothesized collectivists would find support received to be more helpful and effective than individualists.

Method

Participants

Participants were recruited from two expatriate organizations: an expatriate club and an international school for the children of expatriate parents. Fifty surveys were handed out during one club meeting, requesting participation in the study. For the parents of school children, 312 surveys were

sent home with the children. Out of 362 surveys handed out, 35 were returned (9.67% return rate). Participants were not compensated for their participation, and no additional actions were taken to increase the response rating. The final sample, therefore, consisted of 35 adult expatriates living in Mallorca, Spain (9 men and 26 women; $M_{age} = 54$ years). No question in the survey packet asked respondents to identify if they were from the expatriate club or parents of school children, resulting in missing data for the return rate from each group. Age range was 26 to 82 years. Fourteen participants claimed British nationality; however, 21 participants claimed other nationalities (see Table 1). Nationality did not affect the results pertaining to support seeking behaviors or differences between individualists and collectivists.

Materials

Because English is the standard language of communication for most expatriates in Mallorca, the survey was provided in English. However, the entire survey was available in Spanish for those who needed it (only two participants requested this version).

Background information. Table 1 displays the demographic variables assessed. Participants first identified their sex, age, nationality, years lived in Mallorca, marital status,

and whether they had children. If they had children, they provided the age and sex of each child and stated whether their children currently lived at home. These measures were taken to test for possible differences in expatriates with and without children. Expatriates with children living at home, for example, may develop obligatory social networks for the purposes of raising their children. However, differences in perceived support from various social networks were not found to be significant.

Singelis Self-Construal Scale. After participants completed the demographics scale, they reported their agreement with various statements from the Singelis Self-Construal Scale (SCS; Singelis, 1994). This scale measures the extent of individuals' individualistic and collectivist orientation, consisting of 28 statements whereby participants indicate their agreement on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). Fourteen statements totaled the participants' individualism score, and the other fourteen statements totaled the participants' collectivism score. An example of an individualistic statement is, "I enjoy being unique and different from others in many respects." A collectivist statement example is, "Even when I strongly disagree with group members, I avoid an argument." This scale as a measurement of assessing an individual's self-assessment of their individualistic and collectivist self-constructs has been shown to be highly reliable and valid for various ethnic groups and in different languages (Huang, Liu, & Yao, 2009; Singelis, 1994; Singelis et al., 2006).

Social network. To investigate the extent of participants' social network, participants completed questions from the Perceived Community Support Questionnaire (PCSQ; Herrero & Garcia, 2007). Participants rated their agreement with each statement on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). Examples of the 13 statements from the PCSQ include: "I identify with my community," "I collaborate in organizations and associations in my community," and "I can find people in my community that would help me feel better." Strong evidence for the reliability and validity of the PCSQ as a measure for community support is found in Herrero and Garcia's (2007) longitudinal study, which assessed whether Spanish adults' perceived community support over a six month period.

Items on the PCSQ, however, do not address support received from family or friends. In order to investigate support received from family and friends, the original community statements were adapted to include statements concerning family and friends. Participants, therefore, indicated their level of agreement or disagreement of each statement for all three of the social networks (family, friends, and community). For the present study, these questions were phrased as such: "I identify with my _____ family; friends; community," "I collaborate in organizations and associations _____ with my family; with my friends; in my community," and "I can find _____ that would help me feel better. family members; friends; people in my community." Next to each sub-question (i.e., family, friend, and community phrases), participants were given an opportunity to indi-

cate their level of agreement or disagreement with the statements. Three statements ("I can find a source of satisfaction for myself," "I am able to cheer up and get into a better mood," and "I can relax and easily forget my problems.") did not identify a community support network and therefore were not adaptable for identifying family and friend networks. These three items were not included in the analyses.

Life crisis. After participants reported agreement with perceived family, friend, and community support statements, participants answered questions regarding an experienced life crisis. On three blank lines, participants were asked to write down an experienced life crisis. Participants were also asked to recall one person to whom they turned for support and to indicate their relationship with that person (e.g., family member, friend, co-worker, or member of community organization or religious group). This person was only identified by the nature of their relationship (e.g., family member) and not by geographic location. They were then asked a series of questions regarding how this person helped them during their crises. These questions were based on Wadkins' (1991) different types of support (i.e., tangible, appraisal, self-esteem, and belongingness). Participants were asked if the supportive person offered a particular type of support (e.g., helped with chores or tasks, provided advice, or spent time doing a fun activity). Following each question of support type, participants were asked to rate how helpful each form of support was on a 7-point scale (1 = *not very helpful*, 4 = *no effect*, 7 = *extremely helpful*).

Participants also reported the extent to which support changed their self-esteem on a 7-point scale (1 = *more negative*, 4 = *no difference*, 7 = *more positive*) and to what extent did interaction with this person reduce their stress on a 7-point scale (1 = *more stress*, 4 = *no difference*, 7 = *less stress*). Following these questions, participants rated their confidence in their current network on a 7-point scale if they were going through an extremely stressful crisis today (1 = *not very confident*, 7 = *very confident*). They also identified to whom they would turn for support during this hypothetical crisis (e.g., family member, friend, co-worker, etc.). Lastly, participants specified how many in each group were included within their social network. Many participants did not provide exact numbers or estimates for their social networks (e.g., one participant wrote "many"). These data, therefore, were not explored.

Procedures

Participants were presented with a cover letter explaining the nature of the survey and contact information of the experimenters. Participants were also asked to complete the survey anonymously. Each packet contained four parts: a demographic scale, individualism/collectivism scale, scale concerning perceived family, friend, and community support, and a questionnaire of support received during a life crisis. Following the completion of the survey, the participants mailed in their surveys in a prepaid, stamped envelope addressed to the Balears International School. For the parents of school children, participants gave back their surveys to

their child, who then returned the survey to the school office.

Results

Individualism/Collectivism

Social network. Because of moderate to strong internal reliability, items from the social network scale were averaged into three means indexing each of the social networks: family (Cronbach’s $\alpha = .70$), friends ($\alpha = .68$), and community ($\alpha = .78$). Social network means were correlated with participant’s individualism and collectivism means from the Singelis Self-Construal Scale (SCS; Singelis, 1994), measuring cultural orientation. Each participant had two SCS mean scores indicating their level of agreement with individualistic and collectivist comments. Collectivists were expected to report receiving support from family and friends and turn less to community members; whereas, individualists were expected to turn to family and community members, but rely less on friends.

Table 2 shows Pearson r correlations that revealed significant relationships between support received from social networks and cultural orientation. Expatriates with an individualistic orientation were significantly more likely to report receiving family support and community support than friend support. Expatriates with a collectivist orientation were significantly more likely to report receiving family and friend support than community support. These correlations are based on participants’ mean scores for individualism and collectivism and participants’ means scores for perceived social support from family, friends, and community (see Table 2). Each of the three social network mean scores was also correlated with age and time lived in Mallorca. Older expatriates and expatriates who have lived longer on the island are also more likely to report receiving community support than family or friend support (see Table 2).

Types of support. Items from the life crises scale (Wadkins, 1991) were analyzed within each support type. Appraisal support items included comfort, listening, encouragement, and suggestions ($\alpha = .83$). Tangible support items included helping out with chores or tasks and lending money. These items, however, had less internal reliability than appraisal support items ($\alpha = .61$). Because so few participants reported receiving support pertaining to self-esteem ($n = 11$) and belongingness ($n = 17$), these items were not analyzed within these two support types.

To test for differences in cultural orientation for perceived helpfulness of appraisal and tangible support, participants were classified as being either individualists or collectivists. Participants were each assigned individualism and collectivism mean scores based on their self-reported agreement with individualistic ($M = 3.76$, $SD = 0.48$) and collectivist statements ($M = 3.63$; $SD = 0.55$). These means were slightly higher than the Singelis (1994) scale’s midpoint of 3.00. Using participants’ individualism and collectivism mean scores, a dichotomous variable was created by classifying participants as being either an individualist ($n = 17$) or collectivist ($n = 17$) based upon which of their two scores were highest. One participant reported equal agreement with the individualistic and collectivist statements and was excluded from analyses. This individualism/collectivism classification scheme was adapted from Balcutis, Dunning, and Miller (2008) for the purposes of testing for differences between individualists and collectivists.

Collectivists were expected to find support received more helpful than individualists. A one-way between-subjects ANOVA revealed expatriates who reported higher agreement with collectivist statements (i.e., collectivists) rated the helpfulness of suggestions ($M = 6.82$, $SD = 0.41$) significantly higher than did expatriates who reported higher agreement with individualistic statements (i.e., individualists; $M = 5.71$, $SD = 0.99$), $F(1, 23) = 11.91$, $p < .01$ (see Figure 1). Collectivists also rated the helpfulness of encouragement ($M = 6.80$, $SD = 0.56$) higher than individualists ($M = 6.33$, $SD = 0.72$). This difference, however, failed to reach significance, $F(1, 28) = 3.90$, $p = .058$ (see Figure 1). Figure 1 also shows that collectivists rated the helpfulness of comfort ($M = 6.73$, $SD = 0.46$) higher than individualists ($M = 6.06$, $SD = 1.24$). Again, this difference was only marginally significant, $F(1, 29) = 3.91$, $p = .058$. No differences were found for the helpfulness of listening, $F < 1$, or advice, $F < 1$.

Analyses did not reveal cultural orientation differences on ratings of the helpfulness of tangible support, including helping with chores and tasks, $F < 1$. Few participants indicated the supportive person lent them money ($n = 9$), making differences for this form of tangible support difficult to interpret.

Perceptions of support effectiveness. In addition to being asked about specific types of support received, participants also answered three questions pertaining to the effectiveness

Table 2

Pearson Product-Moment Correlation Coefficients for Age, Years Lived in Mallorca, Individualism, Collectivism, and the Extent of Social Network (Friend, Family, and Community).

	Age	Years Lived in Mallorca	Individualism	Collectivism
Family	.12	.07	.34*	.36*
Friend	.26	.23	.09	.41*
Community	.49*	.39*	.35*	.24

* $p < .05$

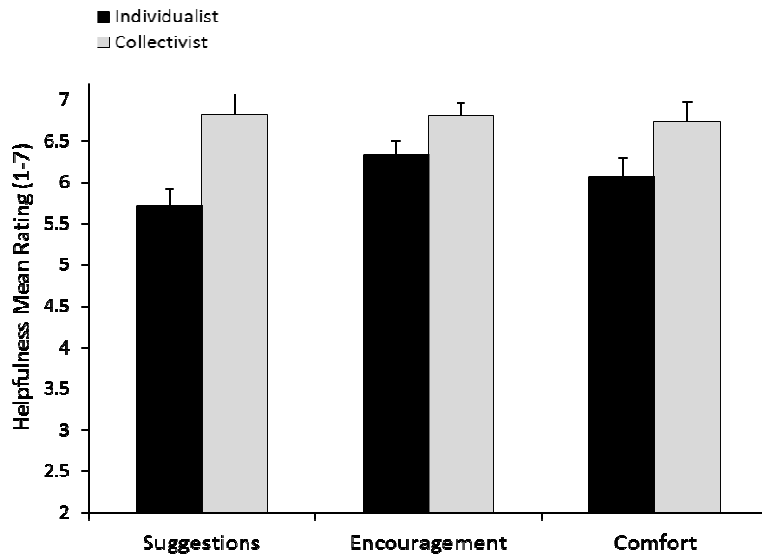


Figure 1. Mean ratings for the helpfulness of suggestions, encouragement, and comfort for participants classified as individualists and collectivists. Standard errors are represented in the figure by the error bars attached to each column.

of this support: the extent to which support changed their self-esteem (either negatively or positively); the extent to which their stress level was reduced; and their confidence in their current network. As general measure support effectiveness, these items have high internal reliability ($\alpha = .80$). I expected collectivists to find support received more effective than individualists. When asked about the extent to which the support participants received changed their self-esteem, collectivists reported significantly more positive changes in their self-esteem ($M = 6.33$, $SD = 1.00$) than individualists ($M = 4.60$, $SD = 0.91$), $F(1, 22) = 18.97$, $p < .001$ (see Figure 2). Although individualists reported less change in self-esteem after receiving support than collectivists, individualists' mean average of 4.60 was still slightly higher than the scales' midpoint of 4.00, which was labeled as no change. Figure 2 also shows that collectivists reported significantly less stress after interacting with the person from whom they received support ($M = 6.31$, $SD = 0.63$) than individualists ($M = 5.31$, $SD = 1.40$), $F(1, 27) = 5.61$, $p = .03$. When asked

to estimate their level of confidence regarding social support if they were to go through a stressful time, collectivists reported significantly more confidence in their current network ($M = 6.81$, $SD = 0.40$) than individualists ($M = 5.69$, $SD = 1.78$), $F(1, 30) = 6.09$, $p = .02$.

Sex Differences

Because there were only nine men who participated in the study, parametric tests were not performed due to concerns with violating homogeneity of error variance. Non-parametric tests, therefore, were used. Women were more likely to report receiving significantly more help with chores (87%) than men (38%), as indicated by a chi-square test of independence for the interaction of sex and the frequency of helping out with chores, $\chi^2(1, N = 31) = 7.58$, $p = .013$. For the other types of support, no significant differences were found between men and women: for the frequency of receiving money, $\chi^2(1, N = 29) = 1.21$, $p = .27$, suggestions, $\chi^2(1, N = 33) = 0.23$, $p = .54$, or advice, $\chi^2(1, N = 32) = 1.52$, $p = .30$.

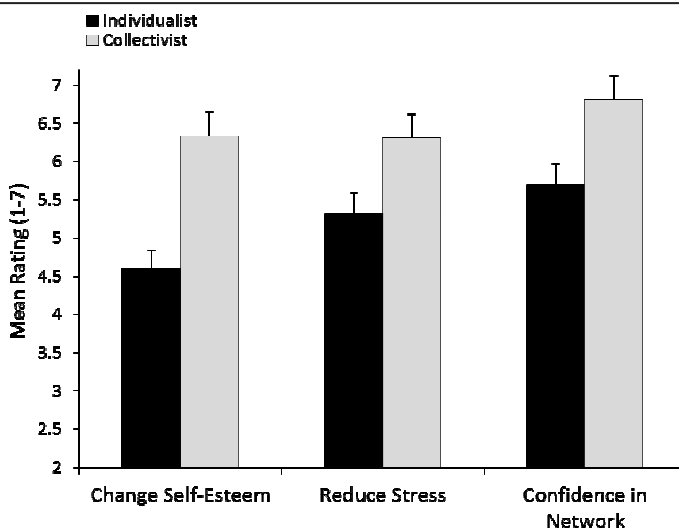


Figure 2. Mean ratings for perceptions of support effectiveness including change in self-esteem, reduction of stress, and confidence in current network for participants classified as individualists and collectivists. Standard errors are represented in the figure by the error bars attached to each column.

All men and women reported receiving similar levels of comfort, listening, and encouragement.

Discussion

In the present study, I hypothesized during a life crisis, expatriates would seek support differentially based on their collectivist or individualistic orientation. Being individualistic or collectivist, furthermore, would also be linked with perceived effectiveness of support received. The present study demonstrates the difference in support received by individualistic and collectivist expatriates during a life crisis from the levels in their social network (i.e., family, friends, and community). Specifically, collectivist expatriates sought support from their primary social networks of family and friends and turned less toward community members. Individualistic expatriates were more likely to seek support from family members and community members and turned less toward friends. Collectivist expatriates, moreover, found support received to be more helpful and effective at reducing their stress levels than individualistic expatriates. Collectivist expatriates were also more confident in their support network should they need them for a future life crisis compared to individualistic expatriates.

The findings may seem counterintuitive based on previous research that found collectivists were less likely to seek support from closer networks to potentially avoid altering the relationship between the support seeker and support giver (Kim et al., 2006). These collectivists, however, are expatriates and may not have or may be unwilling to create another social network in close proximity. During a life crisis, therefore, these expatriates may be willing to disturb the nature of their social network rather than potentially risk not having the support they need. If collectivist expatriates sought support from proximally near social networks (i.e., community), they would need to recreate a social network that fulfills their interpersonal needs (Brewer & Gardner, 1996; Singelis, 1994). In a new environment, such an endeavor would take much more energy than simply seeking support from family and friends, some of whom live in other countries or are currently living under the same household.

Individualistic expatriates would also share the same difficulties collectivist expatriates encounter when negotiating support received from individuals who may live far away. Individualistic expatriates, however, are unlikely to hesitate about approaching family members, because they are more likely than collectivists to be motivated by self-interests and promote their own goals (Brewer & Gardner, 1996; Markus & Kitayama, 1991; Singelis, 1994). An individualist, for example, would be less likely than a collectivist to view a stress-relieving phone call to a sibling as an imposition on their sibling's time. Individualistic expatriates, therefore, may be more willing to seek out their primary social network, family, and individuals who are proximally near, such as community members. Because of physical distance, individualistic expatriates, moreover, may not have their traditional friend social network available and instead report receiving support from community members who are readily

available. Because their relational needs are met by family and community social networks, individualistic expatriates may turn less toward friends than the other social networks.

This study's finding that collectivist expatriates find support received more helpful and effective than individualistic expatriates is also supported in previous research. Collectivists are motivated not only toward others' benefits, but also to the collective welfare of their social network (Brewer & Gardner, 1996; Kim et al., 2006; Singelis, 1994). Any support received from their network should be evaluated positively, because their personal identity is connected with the identity of their social network. If collectivists evaluated support negatively, they would be evaluating themselves negatively, as well. Individualists, however, are motivated by self-relevant goals and less motivated toward the general benefit of their social network (Markus & Kitayama, 1991; Singelis, 1994). Unlike collectivists, individualists who evaluate support negatively would not necessarily evaluate themselves negatively, because their identity is not as strongly connected with the identity of their social network (Brewer & Gardner, 1996; Markus & Kitayama, 1991; Singelis, 1994). Collectivist expatriates, as compared to individualistic expatriates, rated suggestions received significantly more helpful. Individualistic expatriates may be more likely to perceive suggestions as a threat to their personal identity; whereas, collectivists may be more likely to perceive suggestions as beneficial to their social network.

Implications

Although there is a wealth of research that has been conducted on sojourner/expatriate cross-cultural adjustment (e.g., Caligiuri & Lazarova, 2002; Church, 1982; Downie et al., 2007; Swagler & Jome, 2005), this previous research has not identified support seeking behavior during an intensely stressful time. I identified differences among expatriates in perceived support received during a life crisis, specifically, collectivist expatriates perceive support received more effective and helpful during a life crisis than individualists. Collectivists, moreover, tend to perceive support received from family and friends more helpful than from community members; whereas, individualists tended to perceive support received from family and community members as more helpful than from friends.

With this knowledge, community organizations can target specific needs among expatriate populations by being sensitive to expatriates cultural backgrounds. When going through a stressful time, expatriates from a collectivist orientation, for example, may need access Skype, whereas individualistic expatriates may desire community-based functions to promote their goals and interests (e.g., hobbies). Not only would providing cross-cultural adjustment help with adapting to living in another country, but sensitive expatriate support centers could become more effective in responding to expatriates going through life crises. For example, individualistic expatriates may desire less social support and more activities that give them a sense of independence and agency, whereas collectivist expatriates need access to their primary social

network to regain their sense of connectedness. Providing expatriate support acknowledging these differences may result in a stronger buffer against physical and mental health issues (e.g., Bolger & Amarel, 2007; Herrero & Garcia, 2007). Expatriate organizations sensitive to individualistic and collectivist cultural orientations would be better able to direct expatriates according to their independent or interdependent goals for seeking support when expatriates experience a sudden and unexpected life crises.

Expatriates, furthermore, should be aware of the potential life crises that can occur when living outside one's home country. Community centers specializing in helping expatriates adapt to living away from home could also let these individuals know there are many options available to them should they need social support when going through a stressful time. Having plenty of social activities, for example, helping expatriates connect to one another would not only promote individualistic goals of seeking nearby others for support mechanisms, but also promote collectivists developing a new social network in their current place of residence (Brewer & Gardner, 1996; Kim et al., 2006; Markus & Kitayama, 1991).

Limitations

Although I found differences in support seeking behavior based on cultural orientation in an expatriate population, there are several limitations to the present study. First, the differences found between individualists and collectivists could be interpreted as differences not specific to an expatriate population. Without a control group to compare differences in support seeking behavior among a non-expatriate population, the results must be interpreted with care. Based on previous research, however, support seeking behaviors have been measured in non-expatriate populations (e.g., Kim et al., 2006). Because the present study revealed contrary results to previous research, the present finding that support is perceived differently for individualists and collectivists is most likely because of the population used (i.e., expatriates). Secondly, the participants' who reported receiving support from their family members should also be taken with caution. The present study assumed that some of the family members from whom participants reported receiving help live far away. This assumption, however, is not entirely warranted by the data because participants were never asked where the supportive person lived. Some participants may have been referring to a spouse who lived under the same household or a parent or sibling who lived in another country. A third issue limiting the findings of this study is the reliability and validity of the life crisis measure. Although a considerable internal reliability from the participants' responses was found, a larger sample would provide more evidence for the reliability and validity of this measure.

The small sample size of men also provides a fourth problem in the present study. With only nine men in the study, generalizing the findings for all expatriates is difficult. One potential reason for why more women filled out the survey than men could be the method of participant recruitment.

More surveys were sent home with school children than sent with members of the expatriate club. Perhaps the children's mothers are much more likely to check for messages from the school than the children's fathers, which would explain the low number of men who responded to the survey. In addition to the low number of men who responded, overall a low number of participants responded. The overall response rate was very small (9.67%) and no attempts were made to increase the response rate. Given the low sample of men and low response rate, the representativeness of the sample for expatriates living in Mallorca, Spain is questionable. Researchers, however, have found that a small sample size only slightly decreases demographic representativeness. Holbrook, Krosnick, and Pfent (2007) compared surveys done by two large organizations with U.S. Census information and found survey accuracy was only slightly larger for surveys with large response rates compared to surveys with small response rates. Issues with sample representativeness in the present study, therefore, may only exist for respondents' gender, and this limitation may be an artifact of participant recruitment. For the present findings to be validated, future researchers will need to not only replicate the current findings but use control participants, ensuring expatriate individuals turn to individuals who live in other countries, collect data supporting the reliability and validity of the life crisis measure, and increase the number of male participants.

Conclusions

In conclusion, expatriates living in Mallorca, Spain reported different support seeking behaviors during a life crisis based on their collectivist or individualistic orientation. Specifically, individualistic expatriates reported seeking support from family and the community members, but not friends, whereas collectivist expatriates reported seeking support from family members and friends, but not the community members. Collectivist expatriates, moreover, reported receiving suggestions, encouragement, and comfort as more helpful than individualistic expatriates. For collectivist expatriates, the support received was reported to be more effective at improving their self-esteem, reducing stress, creating greater confidence in their social network than individualistic expatriates. These results suggest not only do collectivist expatriates find support received more helpful and effective than individualistic expatriates, but unlike individualistic expatriates, collectivist expatriates seek support to their closest social networks (i.e., family and friends). Although living in a foreign country can bring about its own stress (e.g., cultural adjustment), going through a particular stressful time can be a difficult and traumatic experience for expatriates. Based on the present study's findings, expatriates with individualistic and collectivist orientations not only have to negotiate the stressful experiences of living in a foreign country, in addition to overcoming crises by seeking support from networks best serving their needs. As knowledge of support seeking behaviors among expatriates and sojourners continues to increase, organizations will be better able to help expatriates cope with life crises as they occur.

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In Your Dreams: Exploring Lucid Dreaming, Dream Recall and General Intelligence

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Abstract

To investigate characteristics of lucid dreamers, a survey and test measuring a person's ability to form perceptual relations and to reason by analogy was administered to a sample of ($N = 358$) North Texas community college students. Of these respondents, 31% indicated having experienced a lucid dream, the phenomenon of being aware one is dreaming while in a dream. This obtained incidence rate is markedly lower than consistently reported figures of student samples ranging from 57.5% to 82%. Dream recall was higher for students who were lucid dreamers. Lucid-dreaming participants also scored higher in General Intelligence (g), with data yielding statistically significant differences between groups ($p < .012$).

Keywords: lucid dreams, dream recall, general intelligence

Ancient philosophers and spiritual thinkers throughout history have explored lucid dreaming, defined as the phenomenon of being conscious during dream sleep (LaBerge, 1988). In his treatise *On Dreaming*, Aristotle described lucid dreaming as something in our conscious alerting us when we are dreaming. St. Augustine wrote the first Western account of a lucid dream in 415 AD, and Thomas Aquinas supported the notion, explaining the senses seem to diminish little during sleep. Furthermore, Tibetan Buddhists in the eighth century used yoga to prolong consciousness in the dream state, and in the 12th Century, Spanish Sufi, Ibn El-Arabia stressed the importance of controlling thoughts in dreams, noting the training of this alertness will produce great benefits for the individual (LaBerge, 1988).

Lucid dreaming remained in the philosophical and religious realms until 1913, when Dutch psychiatrist, Frederick van Eeden (cited in Blackgrove, 1991) introduced the phenomenon to psychology by coining the term "lucid dreaming," and defining it as a state in which:

...the re-integration of the psychic functions is so complete that the sleeper reaches a state of perfect awareness and is able to direct his attention, and to attempt different acts of free volition. Yet the sleep, as I am confidently to state, is undisturbed, deep, and refreshing. (Blackmore, 1991, p. 362)

Van Eeden's implication consciousness was possible during sleep created an uproar in the dream research community. Orthodox dream researchers contended consciousness during sleep was impossible given that sleep was the unconscious and the two were inseparable (McPhee, 1995). Therefore, lucid and vivid dreams people experienced most likely occurred during waking state and were not real dreams (Blackmore, 1991).

For 60 years after van Eeden's controversial claim, lucid dreaming remained in the parapsychology realm with no empirical evi-

dence to support its existence (Blackmore, 1991). In 1975, Hearne (cited in McPhee, 1995) became the first to demonstrate, under laboratory conditions, the possibility of consciousness during dream sleep. Hearne, a graduate student at Hull University in England, arranged for the participant to perform a series of eye movements differing from random rapid eye movements (REM) while the participant was in lucid dream sleep. This ocular signaling revealed the mind was able to circumvent the general paralysis of REM sleep because of activity level and consciousness (McPhee, 1995).

Because Hearne's did not publish his contributions to dream research, his significance to the topic went unnoticed. On January 13, 1978, almost three years after Hearne's discovery, graduate student Stephen LaBerge recorded himself spelling his name via electro-encephalogram (EEG) during sleep. LaBerge signaled to colleagues through an improvised Morse code of fist clenching and eye movements when he was in a lucid dream, becoming the second person to show that consciousness in sleep was possible (Rock, 2004). Subsequent research by LaBerge supported the existence of consciousness in REM sleep (LaBerge, 1990).

Unlike Hearne, LaBerge published his research, and today lucid dreaming as a valid ability of the human mind is gaining interest (McPhee, 1995). Since van Eeden, the term lucid dreaming has evolved to mean a state in which, unlike ordinary dreaming where reality and dreams are undifferentiated, the lucid dreamer is aware that he/she is dreaming and able to manipulate the dream context (Schwartz & Godwyn, 1988). Whereas, awareness of the dream state is primary, and volition is secondary and does not need to occur in a lucid dream. In a sample by Hearne, about one-fourth of lucid dreamers were aware they were dreaming but were unable to manipulate their dreams (cited in Rock, 2004).

Exploration of the conscious mind in sleep gained momentum after Hearne's and LaBerge's initial findings, and dream researchers began to look for cognitive and physiological explanations for the sleep phenomenon. Subsequent dream research revealed that lucid dreamers maintained characteristics that differed from non-lucid dreamers: (a) different brain activity (LaBerge, 1988; LaBerge, 1990; Rock, 2004; Tyson, Olgilvie & Hunt, 1984); (b) high dream recall (Spadora & Hunt, 1990); (c) higher creativity (Blagrove & Hartnell, 2000; Snyder & Gackenbach, 1988); and (d) higher intelligence (Snyder & Gackenbach, 1988; Spadora & Hunt, 1990).

The predisposition to lucid dream tends to predict higher dream recall (Gackenbach, 1992; Rock, 2004). Spadora and Hunt (1990) found that participants ($N = 100$, 64 women and 36 men, with a mean age of 23 years) recalled an average of 4.5 dreams per week with a mean of 36.6 lucid dreams per year. However, a second study ($N = 41$, 28 women and 13 men, mean age of 24 years) found higher recall among those who experienced lucid

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dreams more frequently (Spadora & Hunt, 1990). Participants in this second study averaged 5.6 dreams per week and had a mean of 48 lucid dreams per year (Spadora & Hunt).

Exploring the possibility of methodological errors, Gackenbach (1991) noted studies not providing a clear definition of a lucid dream, or require participants to verify a lucid dream experience may have produced inflated estimates due to participants' confusion over the lucid dream concept. Gackenbach (1991) found high estimates were common when lucid dreaming was not confirmed, with 100% of respondents reporting they were lucid dreamers (Gackenbach, Curren, LaBerge, Davidson, & Maxwell, 1983). Additionally, she cites a LaBerge study (1985) in which 85% of participants reported being lucid dreamers (Gackenbach, 1991). However, estimates were usually lower when lucid dream experiences were verified by providing a definition of the concept and asking participants to provide a description of such a dream experience. Gackenbach (1991) eliminated 344 of 707 student participants when dream descriptions were judged to be not lucid or vague, leaving only 57.5% of the student sample as verified lucid dreamers.

Even with verification, estimates appear to be inflated. Schredl and Erlacher (2004) studied German college students ($N = 444$, 376 women and 68 men, mean age 23.5 yr.), and found 82% had experienced a lucid dream at least once, with 36.9% reporting themselves as frequent lucid dreamers. Significance was found in lucid dream frequency and dream recall. Schredl and Erlacher noted the high dream occurrence rate may be explained by the fact that the sample consisted of psychology students who answered the "Sleep, dreams, and personality" advertisement. The ad may have created bias by attracting only those students who had an interest in dream research (Schredl & Erlacher, 2004).

Lucid dreamers' ability to manipulate, rotate, and create dream environments inspired researchers (Snyder & Gackenbach, 1988; Spadora & Hunt, 1990) to examine perceptual, spatial and verbal differences among lucids and non-lucids. Researchers (Snyder & Gackenbach, 1988; Spadora & Hunt, 1990) found lucid dreamers score higher on measures of creativity and intelligence when compared to non-lucid dreamers. Male and female lucid dreamers scored higher on Gough's self-assessed Creative Personality scale than their non-lucid counterparts. On the Torrance Nonverbal test of creativity, female lucid dreamers differed from non-lucid females on two of the four Torrance on measures of nonverbal creativity (Snyder & Gackenbach, 1988). In measures of intelligence, female lucid dreamers had higher verbal and numerical scores than non-lucid females in the Comprehensive Abilities Test (Snyder & Gackenbach, 1988). Lucid dreamers of both genders showed highest means in the Wechsler Adult Intelligence Scale (WAIS) Block Designs (Spadora & Hunt, 1990), and the Haltstead-Reitan Tactual Performance Test, where lucid dreamers were more accurate at locating shapes (Snyder & Gackenbach, 1988). Nonverbal intellectual tasks using the Raven's Advanced Progressive Matrices (Hearne, 1978) and the pyramid puzzle (Gackenbach et al., 1981) were inconclusive. Poor experi-

mental designs may have contributed to these findings. Tests of creativity, although few in number, provided more substantive results than measures of intelligence (Snyder & Gackenbach, 1988).

Dream researchers have since discovered practical applications of lucid dreaming, from overcoming nightmares to facilitating skill performance. In a Canadian case study by Zadra and Pihl (1997), four of five participants no longer had recurring nightmares after being treated with lucid dream induction. The one remaining participant had a decrease in the intensity and frequency of nightmares (Zadra & Pihl, 1997). Lucid dream induction is believed to facilitate performance, and anecdotal evidence suggests practicing skills during sleep can increase proficiency. Dr. R.V. of Aiken, SC utilized lucid dreams to solve complicated mathematical problems in school, and currently hones surgical skills in sleep and claims to perform surgery in less time than other surgeons (LaBerge & Reingold, 1990).

Theoretically, lucid dreaming is a skill that can be learned. One procedure is LaBerge's (1990) Mnemonic Induction of Lucid Dreaming (MILD), where sleepers are to wake before normal waking and engage in an activity before returning to sleep (Blackmore, 1991; LaBerge & Reingold, 1990). Sleepers are also to visualize they are dreaming and train themselves to think, "Next time I'm dreaming, I want to recognize I'm dreaming" (Blackmore, 1991). Another procedure would involve asking, "Am I dreaming or not?" five to 10 times a day, and the premise of this training is that the constant reminder to become lucid throughout the day will aid lucidity during the night (Blakeslee, 1988). The latter method is believed to increase awareness by meditation and mindfulness (Blakeslee, 1988).

Research suggests lucid dreamers also possess intellectual and creative differences (Snyder & Gackenbach, 1988; Spadora & Hunt, 1990). Although testing of Spearman's g on lucid dreamers has not yielded conclusive results, methodological issues may have compromised previous studies. Specifically, Hearne (1978) found no significance with the Raven's Advanced Progressive Matrices; however, Hearne did not control for lucid dream verification or dream recall (Snyder & Gackenbach, 1988).

We began our study with the measurement of Spearman's g in order to test for differences between dreamers. According to Spearman, general intelligence should be measured by one factor g and not be clouded by specific abilities. We chose to measure g with the J. C. Raven's Standard Progressive Matrices (Raven, 1938) (hereafter "Raven's"), the best measure of g (Benjamin, 1994). The Raven's is also known for its strong validity, ease to administer, time effectiveness, and lack of cultural bias (Abad, Colom, Rebollo, & Escorial, 2004). Unlike the Raven's Advanced Progressive Matrices, the Raven's also has no gender bias (Abad et al., 2004). The large number of respondents ($N = 358$) made using Spearman's g more feasible than using spatial, which would require a great investment of time (Pind, Gunnarsdottir, & Johannesson, 2003).

Based on previous research, we hypothesized lucid dreamers would score higher on the Raven's Standard Progressive Matrices test, and report more dream and nightmare recall when compared to individuals who report being non-lucid. In addition, we predicted that when dream lucidity is verified, lucid dream incidence rates will drop.

Method

Participants

Respondents ($N = 358$) were drawn from behavioral science courses at a north Texas college. Specifically, participants were students from General Psychology, Human Sexuality, Sociology, and Life Span Psychology classes. Most were psychology students ($n = 318$); the remainder were sociology students ($n = 40$).

Participants were not reimbursed for their participation and were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 2002). Two-hundred and thirty-one women and 127 men, ranging in age from 17 to 56 years, with a median age of 19 years participated in this study. The median age was used as opposed to the mean age ($M = 21$ years) because of a few extreme values for ages in the 40's and 50's. Students signed an informed consent before completing the dream survey and the J.C. Raven's Standard Progressive Matrices (Raven, 1938).

Materials

The dream survey consisted of 13 questions assessing demographics, handedness, political and religious beliefs, sleep quality and dream recall. The last question was a verification measure of lucid dreaming and was preceded by a definition of a lucid dream. Respondents were asked if they experienced a lucid dream, and if they answered affirmatively they were next asked to describe a lucid dream experience. Upon completion of the dream survey, students took J.C. Raven's Standard Progressive Matrices.

Procedure

The survey and the J.C. Raven's Progressive Matrices were administered in a group classroom setting. Participants were given a minimum of 45 min to complete both. Through verbal communication and within the informed consent, participants were informed of the purpose of the research, advised the results would be presented on campus at a later date, and encouraged to contact researchers to review results. Lastly, participants were thanked for their participation.

Results

Of the sample, 111 respondents (31%) met the criteria established to identify lucid dreamers. Consistent with the research hypothesis, significant differences were found between the raw scores of lucid and non-lucid dreamers on the Raven's test, $t(356) = -2.516$, $p < .012$. Lucid dreamers scored higher on the measure of g intelligence ($M = 51.33$, $SD = 5.60$) than non-lucid dreamers ($M = 49.70$, $SD = 5.70$) as reflected in Table 1. Raw scores were used due to no mul-

tipple measure concerns requiring the use of standardized scores.

Table 1

Mean scores on Raven's Standard Progressive Matrices

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE_M</i>
Lucid	111	51.33	5.60	.53
Non-lucid	247	49.70	5.70	.36

t -test, $p = .012$, two-tailed

Although students who were lucid dreamers were twice as likely to recall a dream every morning (42.3%) than non-lucid dreamers (24.1%), the difference was not statistically significant, $\chi^2(4, N = 358) = 14.15$, $p < .07$. Nightmare recall also was not significant between groups, $\chi^2(4, N = 358) = 8.66$, $p < .07$, with lucid dreamers reporting recall of a nightmare on a daily basis approximately 16.2% of the time; however, only 8.1% of non-lucid dreamers reported so, as shown on Table 2. An ANOVA compared the variance of dream recall and scores on the Raven's but showed no significance. $F(4, 351) = .72$, $MS_e = 32.00$, $p < .58$. Additional variables not yielding significant findings include: gender, political affiliation, and religious beliefs, as well as hours of sleep and handedness.

Table 2

Dream recall among lucid and non-lucid dreamers ($N=358$)

	Lucid	Non-lucid
Dream	42.3%	24.1%
Frightening dream	16.2%	8.1%
χ^2	14.15	8.66

χ^2 test, $df = 4$, $p = .07$

A relationship not considered in the original hypotheses that yielded results worthy of further study was between sleep quality and intelligence. Those who rated their sleep quality as poor scored higher on the Raven's ($n = 19$, $M = 52.05$, $SD = 3.15$) than those who rated sleep quality as good ($n = 146$, $M = 50.89$, $SD = 4.97$), or fair ($n = 192$, $M = 49.59$, $SD = 6.22$). An ANOVA comparing sleep quality and test scores yielded significance, $F(2, 354) = 3.24$, $MS_e = 31.52$, $p < .04$. A test of homogeneity of variances, however, also yielded significance, $F_{Levene}(2, 354) = 9.26$, $p = .001$, indi-

cating heteroskedastic variation in these distributions.

Discussion

Confirming our research hypothesis, lucid dreamers scored significantly higher on the measure of *g* intelligence than non-lucid dreamers. Lucid dreamers have a higher *g* intelligence score on a nonverbal spatial test suggesting they are either better at manipulating the dream environment, or the ability to lucid dream encourages better performance on spatial tasks.

The lucid dream incidence rate of this sample (31%) was much lower than previous student sample estimates of between 57.5% (Gackenbach, 1991) and 82% (Schredl & Erlacher, 2004), both of which verified lucid dream recall. The control question asking for an example of a lucid dream from those who self-identified revealed, despite the definition provided, some students remained unclear about this concept, as several supplied an example of a normal dream experience instead of lucid dream experience. Thus, some respondents who identified themselves as lucid dreamers were not included in the subsample. Criteria for removal from the lucid group included leaving the descriptive question blank, answering "yes" without describing a lucid dream, or describing a dream without mentioning awareness of dreaming.

Even with a limited number of ambiguous responses removed, it is difficult to account for a difference of 49%. This discrepancy could be a result of verification of a lucid dream experience. Previous studies failed to verify or clearly define a lucid dream, which created confusion and inflated numbers. However, when participants are asked to supply a lucid dream, incidence rates dropped dramatically. In a study by Gackenbach et al. (cited in Gackenbach, 1991), 344 of 707 respondents were eliminated when they failed to supply a clear lucid dream account. The data supported the hypothesis that lucid dreamers experienced higher dream and nightmare recall than non-lucid dreamers. This finding is consistent with previous research, and demonstrated the practical potential of lucid dreaming as a skill for those attempting to remember and analyze their dreams.

Students participating in the survey were not asked to identify ethnicity. Though extremely limited research has been performed comparing lucid dreaming and ethnicity, this variable is worth examining in future research. In a study by Palmer (as cited in Snyder & Gackenbach, 1988), 76% of African Americans indicated they were lucid dreamers compared to 53% of Caucasians. No significance was found between those who were right- and left-handed, nor was gender a significant factor. Both findings were consistent with previous research (Schredl & Erlacher, 2004; Snyder & Gackenbach, 1988).

In future studies, individual interviews may be a useful technique in verifying lucidity and clarifying otherwise ambiguous responses. Interviews would encourage respondents to elaborate on their dream account to researchers. Researchers could also enhance generalizability by employing random

sampling techniques over a more reflective population than behavioral sciences students.

The positive relationship between lucid dreaming and nonverbal intelligence suggests the potential for people to increase nonverbal intelligence during sleep. Greenfield (2009) observed nonverbal intelligence, or visual intelligence, as measured by the Raven's has shown a worldwide increase in the last 50 years. Additionally, she noted visual intelligence showed little decline from age 25 to 65 since 1992, attributing the increase to technology, formal education and better nutrition as few reasons for the noticeable increase (Greenfield, 2009). If lucid dreaming can be taught and visual intelligence can be environmentally manipulated, perhaps it is possible to improve nonverbal intelligence by teaching people to become lucid during dream sleep. Lucid dreaming already has practical uses to treat nightmares and increase proficiency (LaBerge & Reingold, 1990; Zadra & Pihl, 1997). Thus, the potential to use lucid dreaming to improve nonverbal intelligence may be as feasible as the previously disputed claim that the mind can be conscious in sleep.

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Mortality Salience and Self-Construal

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Abstract

According to Terror Management Theory, when people write about their own death their mortality becomes salient, resulting in death anxiety. In order to ease this anxiety, they engage in worldview defense. The purpose of the present experiment was to test the hypothesis writing about a significant other's death would lead to higher levels of worldview defense for participants with more interdependent self-construals than those with more independent self-construals. Participants were asked to write about their own death, the death of a significant other or dental pain (the control condition), complete a self-construal measure, and then rate the severity of 12 moral transgressions and suggest monetary fines for those same transgressions. Results demonstrated, regardless of experimental condition, participants' level of independence was positively correlated with their severity ratings of the moral transgressions and participants' level of interdependence was positively correlated with the amount of monetary fines they assigned to those transgressions. Contrary to predictions, no interactions between experimental condition and self-construal levels on these two measures of worldview defense were found.

Keywords: mortality salience, self-construal

Terror Management Theory proposes that when human beings contemplate their own mortality, they experience death anxiety. By upholding their cultural values, individuals believe they will achieve symbolic immortality through their contributions to the enduring culture, thereby diminishing their anxiety (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989). Thus, when death is made salient to an individual, cultural values become very important, as it is through adherence to these values that the individual is reassured of the meaningfulness of one's life and death. By asserting that one's values are worth upholding, death anxiety is eased.

Research on Terror Management Theory began with Rosenblatt et al. (1989), who found municipal court judges' reflecting on their own death, judged an individual violating cultural values more harshly than those who did not have their mortality made salient. Furthermore, Greenberg et al. (1990) found college students had stronger negative reactions toward someone who criticized participants' own cultural worldview when their death had been made salient. These previous studies demonstrate individuals' strong desire to defend their cultural worldview in order to ease death anxiety.

Numerous researchers have found further support for Terror Management Theory over the years. For example, Florian and Mikulincer (1997) asked participants to rate vignettes describing a variety of social transgressions. The participants

were then asked to rate how severe a punishment the perpetrator should receive. Florian and Mikulincer found participants whose mortality was made salient judged violations of their worldview more harshly than those in a control group. These results further supported Greenberg et al.'s (1990) assertion claiming mortality salience increases worldview defense, and concluded participants reacted negatively to numerous types of social transgressions threatening their worldview. Across the board, participants who had recently thought about their own death judged others more harshly if those individuals had violated social norms.

Making one's own death salient has been the norm in the majority of experiments conducted on Terror Management Theory; however, Greenberg, Pyszczynski, Solomon, Simon, and Breus (1994) had participants answer open-ended questions about the death of a loved one. Participants writing about the death of a loved one were more defensive of their worldview than those in the control condition, but not more defensive than those who wrote about their own death. These researchers suggested participants who reflected on the death of a loved one may have been reminded of their own mortality, which in turn caused an increase in death anxiety and amplification in defense of worldview. However, Greenberg et al. concluded the data collected were not sufficient enough for their position to be conclusive, as they did not directly assess the extent to which thinking of a loved one's death reminded participants of their own death.

Numerous studies suggest certain characteristics aside from worldview validation can create a buffer to death anxiety. For example, high self-esteem has been formally included in Terror Management Theory as a buffer to death anxiety and has been widely researched (e.g., Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004; Schmeichel et al., 2009). According to Terror Management Theory, high self-esteem indicates an individual has sufficiently absorbed cultural values and feels like a valuable citizen, who through one's connections with others can overcome death. Thus, individuals with high self-esteem experience less death anxiety than those with low self-esteem when mortality is made salient. In addition, research has demonstrated after thinking about death, individuals seek self-esteem enhancement (Pyszczynski et al., 2004).

Norenzayan, Dar-Nimrod, Hansen, and Proulx (2009) proposed another death-anxiety buffering mechanism is religion. These researchers found non-religious participants were significantly more defensive of their culture worldviews than religious participants. Considering many religions claim to offer the adherent immortality, it would follow those who are religious have less death anxiety. Norenzayan and colleagues demonstrated the importance of recognizing participants'

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level of religiosity when considering how strongly they defend their cultural worldview (separate from their religion) following mortality salience.

In addition to religiosity, political ideology can also play a role in how an individual reacts following mortality salience. Greenberg, Simon, Pyszczynski, Solomon, and Chatel (1992) researched the difference between liberals and conservatives' reactions to mortality salience. They found that when mortality was made salient, liberals were slightly more tolerant of a dissimilar other (i.e., a person with a different worldview) than when mortality was not made salient, whereas conservatives were more intolerant than those conservatives in the control group. Greenberg and colleagues proposed the reason for this finding was liberals considered tolerance to be an important value, so in order to reduce death anxiety their value of tolerance was amplified. These researchers found mortality salience does not always intensify negative reactions toward violations of one's worldview and concluded political ideology should be taken into consideration when measuring the effects of mortality salience.

Another buffer to death anxiety is the acquisition and maintenance of close relationships (Mikulincer, Florian, & Hirschberger, 2003). If close relationships serve as a defense against death anxiety, how one views those close relationships in relation to the self may also be a factor influencing how one responds to mortality salience. The term describing how people see themselves in relation to others is defined as a "self-construal" (Singelis, 1994). Individuals with an independent self-construal see themselves as separate from others, whereas those with an interdependent self-construal see themselves as being interconnected with others. Characteristics of an independent self-construal include feeling unique, emphasizing one's own talents, ideas, and emotions, and communicating very directly with others. Someone with an interdependent self-construal is more likely to consider social roles and status when communicating with others, appropriate behavior considering his/her relationship to others involved, and conscientious of others' unexpressed feelings without direct inquiry (Singelis, 1994). The interdependent self-construal is often found in collectivist cultures similar to those in East Asia and some areas of Central and South America. On the other hand, Western culture, such as the United States, tends to promote an independent sense of self. However, some subcultures in the United States such as the Quakers, small towns, and rural communities, promote values leading to an interdependent self-construal (Markus & Kitayama, 1991).

To date, one study has been published investigating the relationship between Terror Management Theory and self-construal. Friedman and Rholes (2009) found individuals with an interdependent self-construal had lower levels of death-awareness, provided they were lower in religious fundamentalism, than those with independent self-construals. However, they did not induce mortality salience, but rather measured death-awareness (i.e., how readily the participants thought about death when presented with ambiguous stimuli related to death) instead of the effects of death anxiety on

worldview defense. Nonetheless, these findings indicate a possible connection between self-construal and reduced death anxiety. In the current experiment I induced mortality salience in order to determine if self-construal was a factor in the amount of death anxiety one experiences after contemplating one's death or the death of a loved one.

Research has shown self-esteem, religion, and close relationships serve as buffers against death anxiety in addition to upholding one's cultural worldview (Mikulincer et al., 2003; Norenzayan et al., 2009; Schmeichel et al., 2009). However, little research has been done on the connections between death anxiety and self-construal. The purpose of the current study was to examine whether interdependent self-construals may also serve as buffers against death anxiety.

In the current study, participants were asked to write about their own death, the death of a significant other, or about dental pain (this was the control condition) and worldview defense was measured. I hypothesized individuals with higher levels of independence would experience more death anxiety and consequently show higher levels of worldview defense than those with more interdependent self-construals after their own mortality was made salient. However, participants would not show significantly higher levels of worldview defense after thinking about the death of a significant other or in the control condition. Individuals with more interdependent self-construals intertwine close relationships in with their own identity, which may act as a buffer against death anxiety, and because they see others as such an integral part of the self, contemplating the death of a significant other may cause that individual more anxiety than someone who has a more independent self-construal. Therefore, I also hypothesized individuals with higher levels of interdependence would experience more death anxiety and subsequently show higher levels of worldview defense than those with more independent self-construals after the mortality of a significant other was made salient. However, they would not show significantly higher levels of worldview defense after contemplating their own death or dental pain.

Method

Participants

The participants were undergraduate students at a university in the Midwest. There were 109 participants, consisting of 78 men and 31 women between the ages of 18 and 44 years ($M = 22.23$, $SD = 5.32$).

Materials

Experimental materials consisted of one packet divided into four sections. The first section, generated by the experimenter, included demographic questions the participants' gender, age, marital status, religious beliefs, and political affiliation. For the second section of the packet, one-third of the participants wrote about: (1) the process they think their body will go through as they die, and (2) how it makes them feel to think about their own death. One-third answered similar questions about the death of a significant other. They

were also asked to state their relationship to the person they wrote about and how close they were to the individual. The last third, the control group, answered questions about going to the dentist and getting a cavity filled. Rosenblatt et al. (1989) previously used these instructions and proposed writing about one's own death induces mortality salience in the individual. This suggestion means participants are more keenly aware of their own mortality for a period of time after the writing takes place. Writing about a visit to the dentist is used as a control because most participants see this as a negative event, eliminating the possibility of being in a bad mood as the reason for the worldview defense, but it is very different from contemplating one's own death.

Section three consisted of Singelis' (1994) Self-Construal Scale used to assess participants' level of independent and interdependent self-construal. The measure used a 7-point Likert scale from *strongly disagree* (1) to *strongly agree* (7), and consisted of 24 questions. An example of a question indicating higher levels of interdependence included, "My happiness depends on the happiness of those around me." A question indicating higher levels of independence would be, "I enjoy being unique and different from others in many respects." The interdependent portion of the scale had a reliability of $\alpha = .76$ ($M = 57.67$, $SD = 9.83$) and the independent portion of the scale had a reliability of $\alpha = .69$ ($M = 60.47$, $SD = 9.17$).

Section four, the dependent variable, was a measure generated by the experimenter, asking participants to rate the severity of 12 moral transgressions (e.g. prostitution, flag-burning, lying, stealing office supplies) on a 7-point Likert scale, from *not severe at all* (1) to *very severe* (7). The scale had strong reliability, $\alpha = .86$ ($M = 67.45$, $SD = 11.52$). Participants also indicated how much a perpetrator of the transgression should be fined from \$1 minimum to \$1000 maximum. This scale also had high reliability, $\alpha = .83$ ($M = 6398.56$, $SD = 2748.53$).

Procedure

The experiment was conducted in the natural classroom setting at the regularly scheduled time. After giving their informed consent, participants answered a series of demographic questions. Next, they completed one of the three mortality salience manipulations. Thirdly, they completed the self-construal measure. Lastly, they rated the severity of 12 moral transgressions and proposed appropriate monetary punishments.

Once the experiment was complete, participants were debriefed. Due to the sensitive nature of the information requested during the experiment, special efforts were made to return the participants to a state of well being equal to or better than prior to the experiment. This attempt included profuse thanks for their important contribution to science, brief light-hearted conversation, and candy.

Results

Analyses included three independent variables

(Interdependence, Independence, and Mortality Salience Condition) and two dependent variables (Transgression Severity Total and Fine Total). Considering interdependence and independence as separate, continuous variables, and to avoid losing data by dichotomizing those variables, I tested my hypotheses using regression analyses. Because my analyses included a categorical independent variable (Mortality Salience), I followed Aiken and West's (1991) recommendations and transformed this three-level variable into two dummy-coded variables to be included in the regression analyses.

My first hypothesis predicted higher levels of independence would predict higher levels of worldview defense (both Transgression Severity Total and Fine Total) for participants in the Self-Mortality condition but not in the other two mortality salience conditions. That is, I predicted a Mortality Salience Condition x Independence interaction. In order to test this hypothesis, I conducted two stepwise regressions. In the first regression Transgression Severity Total was the outcome variable. I entered the two dummy-coded mortality salience condition variables in the first step, Independence and Interdependence in the second step, and the product variables (both dummy-coded condition variables crossed with Independence) in the third step. The predicted Mortality Salience Condition x Independence interaction effect on Transgression Severity Total failed to emerge. In this regression, the only significant predictor of Transgression Severity Total was Independence, $\beta = .22$, $SE = .12$, $t = 2.26$, $p < .05$. This positive beta weight indicates higher levels of independence predicted higher scores on Transgression Severity Total, regardless of mortality salience condition.

In the second regression, Fine Total was the outcome variable. As with the first regression, I entered the two dummy-coded mortality salience condition variables in the first step, Independence and Interdependence in the second step, and the product variables in the third step. The predicted Mortality Salience Condition x Independence interaction effect on Fine Total failed to emerge.

The second hypothesis stated higher levels of interdependence would predict higher levels of both measures of worldview defense for participants in the Mortality of a Significant Other Condition but not in the other two mortality salience conditions. That is, I predicted a Mortality Salience Condition x Interdependence interaction. In order to test this hypothesis, I conducted two stepwise regressions. In the first regression, Transgression Severity Total was the outcome variable. I entered the two dummy-coded mortality salience condition variables in the first step, Independence and Interdependence in the second step, and the product variables (both dummy-coded condition variables crossed with Interdependence) in the third step. The predicted Mortality Salience Condition x Interdependence interaction effect on Transgression Severity Total failed to emerge.

In the second regression, Fine Total was the outcome variable. As with the first regression, I entered the two dummy-coded mortality salience condition variables in the first step, Independence and Interdependence in the second step, and

the product variables in the third step. The predicted Mortality Salience Condition x Interdependence interaction effect on Fine Total failed to emerge. In this regression, the only significant predictor of Fine Total was Interdependence, $\beta = .20$, $SE = 26.25$, $t = 2.00$, $p < .05$. This positive beta weight indicates higher levels of interdependence predicted higher Fine Total score, regardless of mortality salience condition. See Table 1 for the full results of the four regressions.

Discussion

I first hypothesized predicted individuals with higher levels of independence would experience more death anxiety and show a greater increase in worldview defense after their own mortality was made salient than when the mortality of a significant other or dental pain was made salient. Previous research has shown when one's mortality is made salient they demonstrate an increase in worldview defense in order to quell death anxiety (e.g. Greenberg et al., 1990; Rosenblatt et al., 1989); however, the results of the current study did not replicate those findings. Furthermore, results revealed that participants' levels of independence and interdependence failed to interact with mortality salience condition in predicting worldview defense. According to Greenberg et

al. (1994), thinking about the death of a loved one may also make one's own death salient, and thus creates the same result as writing about one's own death. However, the results of the current study demonstrated individuals in the control condition behaved similarly to those in the two mortality threat conditions in terms of their levels of worldview defense, this explanation fails to account for the finding of the current study.

Secondly, my hypothesis, individuals with higher levels of interdependence would experience more death anxiety after the mortality of a loved one was made salient, was also unsupported. One reason the sample may not have experienced sufficient death anxiety could be due to the participants' high self-esteem. According to Pyszczynski et al. (2004), self-esteem serves as a buffer to death anxiety. However, I did not assess the participants' self-esteem. Perhaps, if I had controlled for participants' levels of self-esteem, the hypothesized interactions between self-construals and mortality salience condition on worldview defense would have obtained. Similarly, if I had measured and controlled for close relationships because they buffer death anxiety (Mikulincer et al., 2003), it is possible that the hypotheses would have been supported.

Table 1

Hierarchical Regressions of Dummy-Coded Condition Variables, Interdependence, Independence, and their Interactions on Transgression Severity Total and Fine Total Scores

	Dependent Measures					
	Trans. Severity Total			Fine Total		
	R^2 Chng.	F Value	β	R^2 Chng.	F Value	β
Step 1						
Condit. Dummy #1			.02			.08
Condit. Dummy #2			.04			.19
R^2 Chng.	.00	.06		.03	1.4	
Step 2						
Interdependence			.09			.20*
Independence			.22*			.15
R^2 Chng.	.05	2.66		.05	2.70	
Step 3 (a)						
Condit. Dummy #1						
Interdependence			-.05			.04
Condit. Dummy #2						
Interdependence			-.09			.10
R^2 Chng.	.00	.15		.00	.18	
Step 3 (b)						
Condit. Dummy #1						
Independence			.05			-.01
Condit. Dummy #2						
Independence			.17			.21
R^2 Chng.	.02	.93		.03	1.6	

* $p < .05$

For future research in Terror Management Theory, self-esteem, number and strength of close relationships, and religiosity should be assessed. Secondly, I would recommend a modified replication of this experiment, including measures for these three variables, as well as a larger sample size. Future research should include participants from a collectivist culture to see if those who traditionally have very high levels of interdependence experience more death anxiety when contemplating the death of a significant other than after contemplating their own death.

Mortality salience aside, I found individuals who had higher levels of independence rated social transgressions more severely than those with more interdependent self-construals. However, those with higher levels of interdependence, while not rating the transgressions as severe, assigned higher fines to the transgressions than those with more independent self-construals. Perhaps the interdependent person cares more about whether the other person pays for his or her transgression because, as a fellow member of that society, the other person is a part of the interdependent person's self. Even if someone with an interdependent self-construal does not see the transgressor as a part of one's self, he or she may be more likely to value harmonious relationships and feel that transgressions be rectified in order to maintain peace and stability. However, the independent person may care less about the punishment because whether the perpetrator pays a fine or not has no effect on someone who is completely independent from him/her. More self-construal research is needed because of the practical implications held.

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Children and the Power of Optimism

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Abstract

The purpose of this study was to determine if priming a child to think optimistically about tomorrow would decrease the child's depression and anxiety scores. One group of participants wrote a short story about something that could happen tomorrow (control condition), whereas another group of participants wrote a short story about something exciting happening tomorrow that would make them happy (optimism condition). Participants then completed scales measuring depression (Beck, Beck, & Jolly, 2001) and anxiety (Beck, Epstein, Brown, & Steer, 1988). Results showed children in the optimism condition had lower scores on both anxiety and depression, and furthermore anxiety and depression were moderately correlated. We also discuss implications for application in school settings.

Keywords: children, optimism, priming, anxiety, depression.

The moment when you first wake up in the morning is the most wonderful of the twenty-four hours. No matter how weary or dreary you may feel, you possess the certainty that, during the day that lies before you, absolutely anything may happen. And the fact that it practically always doesn't, matters not a jot. The possibility is always there."

Monica Baldwin

Waking up knowing the day holds infinite possibilities for the better is a wonderful way to start a day on the right foot. Optimism for some may be a last resort when dealing with life stressors, whereas for others optimism is the first method of coping. In the life of a child, this optimistic outlook may make all the difference when dealing with life stressors. The belief things will turn around, or that tomorrow will be better than today, has an impact on one's psychological state. The purpose of this study was to determine if priming a child to think optimistically about tomorrow would decrease the child's score on depression and anxiety scales.

Optimism in Children

Optimism is a tendency or disposition to expect the best (Gillham & Reivich, 2004). This expectation of the best often refers to general life situations and maintains as a relatively stable trait. A lack of optimism in a child's life can affect his or her overall psychological functioning and ability to cope with life stressors, such as anxiety or depression (Gillham & Reivich, 2004). Gillham and Reivich suggest optimism is an important protector for children when dealing with major life challenges, whereas pessimism is associated with lower self-esteem, depression, and suicide and stems from a general belief good things will happen, or from a be-

lief that we can control outcomes in life.

Recent research has suggested a connection between genetics and environmental factors predisposing an individual to be optimistic or pessimistic (Gillham & Reivich, 2004). Twin studies have analyzed a heritability component to optimism; however, other research has suggested environmental factors are also able to influence optimism. Furthermore, research has been conducted to analyze pessimism in children who have experienced negative life events. Children who have experienced abuse or high levels of parental conflict are at an increased rate of being pessimistic (Gibb et al., 2001). Parenting also plays an important role in the development of optimism in children. Caring and affectionate parents have children who report higher levels of hope and optimism compared to children of parents who have a neglectful parenting style (Gillham & Reivich, 2004). Children should feel free to explore their environment in a positive manner; being raised by optimistic parents has an influence upon this. Hasan and Power (2002) found moderate levels of parental control lead to an increase in the child's optimism. Mothers in Hasan and Power's research who allowed their children to try new things with moderate rules and restrictions, and implemented a reasonable level of control on the decisions in their child's life, had children with the highest levels of optimism. Gillham and Reivich (2004) also suggested children may learn an optimistic attitude from sources such as teachers, their community, and societal views through the institutions in which they interact.

Whereas too little optimism has a negative effect on the well being of a child, too much optimism is detrimental children's welfare. Gillham and Reivich (2004) found adolescents not taking responsibility for their actions or minimize their problems also score high on optimism scales; these same individuals are no better dealing with adversity or solving problems comparative to their less optimistic peers. Furthermore, authors of this research concluded extreme optimists had more interpersonal difficulties, and they were more likely to minimize interpersonal conflict thus experienced greater interpersonal conflict in the long term. Extreme optimists' "it can't happen to me" attitude leaves them unprepared to cope with negative life events (Gillham & Reivich, 2004). In the present research, we expected moderate levels of optimism would relate to better psychological well being, as found in previous research (Gillham & Reivich, 2004).

Alternatively, pessimism is an expectation for failure and the anticipation of a negative outcome (Boman, Smith, & Curtis, 2003). Research conducted on the effects of pessi-

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ism and the tendency to explain events in a helpless manner (i.e., helpless explanatory styles) found male and female students with helpless explanatory styles experienced high levels of anger intensity, and were more likely to resort to destructive school behavior (Boman et al., 2003). Moreover, research has found a positive correlation between maternal pessimism and child pessimism (Hasan & Power, 2002). In other words, mothers anticipating negative outcomes had children who tended to obtain a pessimistic outlook. Mothers meeting daily needs and crises with complaining and negative viewpoints may pass on this thought process to their children. This effect gives evidence for an environmental influence on the development of pessimism and optimism. On the other hand, mothers may pass on a pessimistic/optimistic gene to their children, thus increasing a child's chance of a pessimistic explanatory style (Hasan & Power, 2002).

Regardless of the origins of optimism, the construct can have a profound effect on individuals' lives. Optimists have greater success in school, in their career, as well as on the playing field (Schulman, 1995). Specifically relevant to the first hypothesis of our study, adults high in optimism report lower anxiety (Gladstone & Kaslow, 1995), enjoy greater marital satisfaction, have better physical health, and have a longer life span than pessimists (Buchanan, 1995).

Having an optimistic attitude for general life events may lead to more persistence to find solutions to problems, in addition to a better chance of individuals taking better care of themselves. In a study conducted on depression and self-image in school children, Kirkcaldy and Siefen (1998) found students rating themselves high in depression were more likely to exhibit negative self-constructing. This negative self-constructing included self-image, negative tone, and high impulsivity.

Depression and Anxiety in Children

Previous research has indicated a high comorbidity rate between anxiety and depression in children (e.g., Nilzon & Palmerus, 1997); this rate is high enough for some researchers to suggest anxiety and depression may, in part, be the same syndrome. Individuals reporting one disorder often show symptoms of the other. Symptoms of anxiety have been reported in 10%-12% of children and adolescents, and anxiety experienced in childhood can carry over into adulthood (Verhulst, Van Der Ende, Ferdinand, & Kasius, 1997). In adults, anxiety and depression are comorbid, but the exact relation between anxiety and depression in children is not fully understood. Teachers evaluate depressed children as being considerably more anxious than their non-depressed peers (Nilzon & Palmerus, 1997). Comparisons have shown depressed children worry more, are greater perfectionists, have higher guilt-feelings, complain more about unspecified pains and show more concern about lack of performance in school. Nilzon and Palmerus also found depressed children showed higher rates of anxiety in six specific areas including: unrealistic worry about the future, preoccupation with the past, failure in school, somatic complaints, self-

consciousness, and a feeling of unhappiness with themselves. These researchers also found children scoring high on anxiety scales also rated high in depression, thus suggesting a relationship between the two psychological disorders.

One in five adolescents may experience an episode of clinical depression by the end of high school (Gillham & Reivich, 2004). Further research has shown as much as 14% percent of children may experience clinical depression by the end of middle school (Garrison, Schluchter, Schoenbach, & Kaplan, 1989). Strauss (1988) found a group of depressed children obtained significantly higher ratings for overanxious disorder as compared to the control, non-depressed group. Overanxious disorder is characterized in children as: excessive worry about future events, over concern about one's performance, an extreme need for reassurance by others, and self-consciousness (Strauss, 1988). Similar studies have shown children with one disorder often display at least some, if not all, of the symptoms of another disorder. A further study revealed anxiety symptoms predicted later depression symptoms in boys and girls, though the relationship was stronger for girls (Chaplin, Gillham, & Seligman, 2009). Chaplin and colleagues proposed the hypothesis anxiety symptoms must then co-occur more in girls than boys, but no evidence was found to support their hypothesis.

Cognitive Behavioral Therapy (CBT) has received support as the treatment most effective for children suffering from anxiety disorders (Compton et al., 2004) as well as depression. According to the cognitive-behavioral model, depression and anxiety often stem from an overly negative style of thinking (Garrison et al., 1989). CBT attempts to change negative thinking patterns of the patient, thus promoting an identification of these negative thinking styles to generate an alternative interpretation to a more optimistic outlook. Treatment with CBT can include recognition and labeling of emotions, enhancing social skills, changing negative cognitive attributions (Vostanis, Feehan, Grattan, & Bickerton, 1996), relaxation training, and assertiveness (Gillham & Reivich, 2004). CBT is not the only form of therapy used to treat anxiety and depression; other therapies exist for treatments proven to be effective (Gillham & Reivich, 2004). These therapies, in addition to CBT, share one common component in their effectiveness: the promotion of optimism and positive thinking in the children being treated. These suggestions are what led to the current study, which attempts to change, at least temporarily, the thought patterns of children to be more optimistic, and thus decreasing anxiety and depression.

Summary of Hypotheses

Based upon the review of previous research, we proposed three hypotheses for the current research:

Hypothesis 1: Children asked to be optimistic in speculation for tomorrow's events will report lower anxiety compared to children not primed to think optimistically.

Hypothesis 2: Children primed to view tomorrow positively will report lower depression compared to those children not primed to view tomorrow optimistically.

Hypothesis 3: In children, depression and anxiety are positively correlated.

Method

Participants

This study included 31 children from a Midwestern local day care center ($n = 19$) and a martial arts school ($n = 12$), between the ages of seven and 11 years ($M = 8.74$, $SD = 1.13$). The demographics are as follows: 24 participants were boys (77.4%) and seven participants were girls (22.6%); 87.1% were White Non-Hispanic, 3.2% were Latino, 3.2% Asian, and 6.5% other. Parents/Guardians were asked to report current annual income of the family: 3.2% were between \$16,000 and \$30,000, 45.2% were between \$31,000 and \$50,000, 35.5% were between \$51,000 and \$75,000, and 16.1% were between \$76,000 and \$100,000. We also asked participants' parents/guardians to report on the number of siblings in the family: four participants (12.9%) were reported as being the only child whereas 23 participants (74.2%) had one or two siblings, four (12.9%) had between three siblings, and no child had four or more siblings in the family. For 90.3% of the participants English was the primary language spoken in the home; for all participants, levels of English speaking were more than adequate to understand the survey materials.

Materials

Independent Variable: Optimism Manipulation

Packets, which contained one essay question and several psychological measures, were randomly distributed to participants. Depending on the experimental condition, the packets differed in only one way: half of the packets had the essay question, "Please write a short story telling me something that could happen tomorrow" (control condition), whereas the other half of the participants received the packet with the essay question, "Please write a short story telling me something exciting and great that would make you happy, that could happen tomorrow" (optimism condition).

Dependent Variables: Depression and Anxiety

The participants completed adaptations of two common psychological measures: the Depression Index-Youth (Beck et al., 2001) and the Beck Anxiety Index (Beck et al., 1988). The scales did not differ in the two versions of the packet. To avoid participant fatigue each scale was shortened from the original; see the Appendix for revised items.

Depression. The modified Depression Index-Youth is a 10 item self-report questionnaire intended to evaluate depressive symptoms in youth, especially those tied to emotional and social functioning (Beck et al., 2001). The items in the index cover the areas of depression, anxiety, anger, disruptive behavior, and self-concept. An example item from the modified version is, "I feel my life is harder than everyone else's." Participants ranked each item on a 4-point Likert scale ranging from 1 (*never*) to 4 (*always*) based upon how often they felt each symptom in the past few days. Each item was

summed to obtain a total score in the possible range of 10-40. Higher scores reflect greater depressive symptoms. Internal consistency for this scale was relatively low, $\alpha = .34$, but because of the popularity of this scale and past research establishing its validity, scores were used.

Anxiety. The modified Beck Anxiety Index measured anxiety in the participants (Beck et al., 1988). The Anxiety Index is a 10-item self-report questionnaire using a 4-point Likert scale (0 = *not at all*, 1 = *mildly; did not bother me much*, 2 = *moderately; symptom wasn't pleasant*, and 3 = *severely; bothered me a lot*) measuring how troublesome certain symptoms have been in the past month, including the day the questionnaire was completed. An example from the modified version is, "Fear of the worst happening." The entire measure was summed, with the range of possible scores from 0 to 30, with a higher number indicating greater anxiety symptoms. Internal consistency for the modified scale was moderately strong, $\alpha = .71$.

Procedure

Area day care centers and a local martial arts school were contacted by phone or e-mail to be informed of the nature of the study. Once these institutions agreed, parents/guardians read and signed a consent form allowing for their child to participate in the study (consent forms in Spanish were provided upon request). Upon completion of the consent form, parents were asked family demographics providing the following information: age, race, and sex of the child, number of siblings, total family income, primary language spoken in the home, and possible life stressors in the past year.

Additionally, parents/guardians gave consent researchers went to either location and interacted with each participant on an individual basis. Participants were greeted and thanked for their willingness to help the study. They were shown the packet and instructed to complete it in order. The first task was the essay, which served as the optimism manipulation. After writing the essay, participants immediately completed the depression scale, then the anxiety scale. The entire survey took all participants less than 10 min to complete. Upon completion of the materials, the children were thanked for their time and debriefed.

Results

Hypothesis 1

In order to examine the influence of optimism on self-reported levels of anxiety, a *t*-test was conducted to compare anxiety levels reported by children in the optimism prime condition to those in the control condition. These results revealed children in the optimism prime condition reported lower levels of anxiety ($M = 7.27$, $SD = 5.68$) compared to children in the control condition ($M = 10.75$, $SD = 3.47$), supporting Hypothesis 1, $t(29) = -2.08$, $p = .047$, $d = .76$.

Hypothesis 2

A *t*-test examined whether children who were primed to view tomorrow optimistically would report lower depression

compared to those not primed to think positively. Results of this analysis supported our prediction, $t(29) = -2.55$, $p = .016$, $d = .36$. Participants primed to view tomorrow optimistically scored lower on a depression scale ($M = 14.93$, $SD = 2.55$) compared to those in the control condition ($M = 17.25$, $SD = 2.52$).

Hypothesis 3

Finally, we calculated correlations between anxiety and depression. Results of this analysis found a moderate positive correlation between anxiety and depression, $r(29) = .322$, $p = .078$, supporting our hypothesis marginally.

Discussion

By conducting this research, we hoped to better understand the impact of priming a child to view tomorrow optimistically on depression and anxiety. Findings of this research supported two of our hypotheses and marginally supported the third. More specifically, our findings suggested encouraging a child to think about tomorrow positively decreased anxiety scores. Results also showed encouraging children to view tomorrow optimistically resulted in lower depression scores. These results may suggest a method for temporarily lowering symptoms associated with anxiety and depression thus creating a buffer for life stressors.

Furthermore, results revealed children who scored higher on the anxiety scale also scored higher on the depression scale, indicating the two maintained a positive relationship. A child suffering from anxiety could perhaps be suffering from depression simultaneously, and vice versa. Surprisingly, a simple essay manipulation such as the one used here can potentially have a profound impact on a child's well being, even if that impact is temporary.

Limitations and Positives

Our study contains two major limitations: (a) the number of participants, and (b) the gender imbalance among participants. Future research should address each of these concerns to gain a better understanding of how optimism affects anxiety and depression. Although all three hypotheses were supported with a small sample, a larger sample would be more diverse and therefore more generalizable. An increase in female participants would have allowed the current research to explore gender differences in anxiety, depression, and optimism. A study conducted on the anxiety dimensions in children in 3rd through 6th grade found the anxiety scores of boys were significantly lower than girls (Cole & Olatunji, 2009). Walsh, Stewart, McLaughlin, and Comeau (2004) found girls around the age of 14 years demonstrated more physiological and social concerns for symptoms of anxiety compared to their boy counterparts. Walsh and colleagues found no gender differences were found pertaining to psychological symptoms of anxiety. We hoped to explore the impact of sex on anxiety, but was unable to do so due to the lack of available female participants.

Further findings give evidence for a sex difference in the levels of optimism in 8- and 9-year-old children. Boys were

shown to be significantly more optimistic than girls, in both health and non-health-related events (Albery & Messer, 2005). Furthermore, Stipek, Lamb, and Zigler (1981) conducted a study on the measure of children's optimism, also finding a gender difference in optimism. Boys, especially those with middle socioeconomic status (SES), were significantly more optimistic comparative to girls with middle socioeconomic status. An increase in the overall number of participants would allow for a replication of the above results from previous research, and could test for gender differences in reaction to the experimental primes used here. Our study did not provide enough children from multiple SES backgrounds to adequately assess if SES had a significant impact upon the level of optimism. A final limitation is the relatively low internal consistency of the modified depression scale. Because this version has not been validated in a separate sample, there may have been increased error in the results as compared to the original scale. Further research could explore any differences in interpretation between the two versions of the index.

Despite the limitations, the value of this research is noteworthy. All three hypotheses were at least marginally supported indicating a relation between anxiety and depression along with a method for potentially lowering both on a temporary basis. The findings of the present research could be of use in school, home, daycare, therapy, and extracurricular activity settings. Teachers could implement such priming activities and thought questions resembling those used in the present research to induce positive thinking and lower levels of anxiety and depression. This research could also spark optimism training for individuals working on a daily basis in close contact with children, teaching these employees how to assist children with the creation of stress buffers. Day-to-day positive thinking could promote psychological health and well being in each child. Therapy sessions could also incorporate positive psychology techniques as part of the treatment regime.

Implications for Future Research

The results of this study are intriguing and warrant further research to investigate the importance of optimism in the life of a child. Future research should investigate the effects of long-term optimism and the method of application. The current research was not longitudinal in nature, and thus it is unclear how long effects of the essay prime might last. Additional research would provide information in how to assist a child in the building of long term optimism and the effects of such ability. Researchers could also investigate multiple days of optimism priming in children in order to analyze the impact on anxiety and depression over time.

Whalen and colleagues (1994) also conducted research to investigate optimistic biases in children, and optimistic bias is defined as a generalized tendency to perceive one's own risks as lower comparative to others. There is literature suggesting non-depressed individuals display unrealistic optimism; these individuals underestimate the likelihood of negative events in their life and over-estimate the chance of pos-

itive events (Gillham & Reivich, 2004). Gillham and Reivich also argue that an optimistic bias is essential for happiness and well-being to occur.

Previous research has indicated school-aged children are likely to express an optimism bias, and are more likely to report experiencing a positive event comparative to their peers (Whalen et al., 1994). Future researchers could assess the implications of optimistic bias, the age ranges in which this is most likely to occur, and the consequences of such a bias. Additionally, more investigation is needed to better understand if optimistic bias has the same effect on anxiety and depression, or if too much optimism has adverse effects to daily functioning.

In addition, future experimenters should examine if such a priming mechanism has similar effects on multiple age groups. Furthermore, additional research could be conducted to analyze if adults require further prompting of positive thinking to have an effect on anxiety and depression levels. This type of investigation would allow for a broader range of application and an extended context whereby the research could potentially be applicable. Examining multiple age groups may provide further insight into the application of optimism and methods of increasing optimism in varying age ranges.

As past research (Gladstone & Kaslow, 1995) has suggested, if anxiety and depression are decreased with higher optimism, simple manipulations such as asking children to think about how wonderful tomorrow may be can help children to function better. Gaining a better understanding of this association is essential.

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Appendix

Modified Depression Scale

Please rate on a scale of 1-4 how each of these statements applies to you. With each statement, **circle** the best number that best fits your answer on how you have been feeling the **past few days**.

	Never 1	Sometimes 2	Often 3	Always 4
1. I have had a bad life	1	2	3	4
2. I can't sleep	1	2	3	4
3. I blame myself	1	2	3	4
4. I feel lonely	1	2	3	4
5. I feel my life is harder than everyone else's	1	2	3	4
6. I am worthless/I'm bad	1	2	3	4
7. I hate myself	1	2	3	4
8. I feel isolated	1	2	3	4
9. I feel like crying	1	2	3	4
10. I feel hopeless	1	2	3	4

Modified Anxiety Scale

Please rate on a scale of 0-3 how each of these statements applies to you. With each statement, **circle** the number that best fits your answer based upon your feelings in the **past month**, including **today**.

	Not at all 0	Mildly, but it didn't bother me much 1	Moderately, it wasn't pleasant at all 2	Severely, it bothered me a lot 3
1. Feeling hot	0	1	2	3
2. Unable to relax	0	1	2	3
3. Fear of worst happening	0	1	2	3
4. Dizzy or lightheaded	0	1	2	3
5. Heart pounding/racing	0	1	2	3
6. Unsteady	0	1	2	3
7. Terrified or afraid	0	1	2	3
8. Nervous	0	1	2	3
9. Shaky/unsteady	0	1	2	3
10. Scared	0	1	2	3

Special Features

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The Special Features section provides a forum for three types of essays that should be of considerable interest to students and faculty. Students can address a variety of issues for subsequent issues of the Journal's Special Features sections. At the end of this issue, you can read about those topics: Evaluating Controversial Issues, Conducting Psychological Analyses—Dramatic, and Conducting Psychological Analyses—Current Events. In this volume, two students analyze movies, and two debate the controversial issue of explaining gender differences.

The Joker: The *Dark Knight's* Antisocial Villain

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Heath Ledger's death in 2008 was a shock to the world, but his memorable performance as The Joker in Christopher Nolan's *The Dark Knight* (Roven, Thomas, & Nolan, 2008) made him a legend in Hollywood. In fact, his role earned him an Oscar for "Best Performance by an Actor in a Supporting Role." The character of the Joker was a complex role that Heath Ledger himself struggled with, even as an experienced actor. The Joker exhibits several diagnostic features of antisocial personality disorder as described in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000), including: failure to conform to social norms, deceitfulness, irritability and aggressiveness, reckless disregard for the safety of himself or others, consistent irresponsibility, and lack of remorse. Although the Joker displayed most of the features of the diagnosis, two of the criteria do not fit his character: impulsivity and failure to plan ahead. Other features of diagnosis include an age of at least 18 years, the Joker meets, evidence of conduct disorder with onset before age 15 years, not portrayed in the movie but assumed given his stories about his childhood. Finally, the Joker's occurrence of antisocial behavior is not exhibited exclusively during the course of schizophrenia or a manic episode because he does not possess either of these mental disorders.

The Joker fails to conform to social norms and constantly breaks the law (American Psychiatric Association, 2000) as made evident by his actions within *The Dark Knight*. His character considers himself a "better class of criminal" than the city of Gotham "deserves" (Roven et al., 2008). He considers his criminal behavior as something the people of Gotham city should appreciate and want, indicative of distorted view of society, its laws, and the safety of others. In a discussion he had with Batman, he referred to the world's morals

and codes as a "bad joke" that is dropped at the first sign of trouble. He commends these "civilized people" will "eat each other" (Roven et al., 2008). His ability to strategize and turn people against each other only confirmed his beliefs the Joker finds it amusing the police, political figures, and Batman feel they cannot trust each other and constantly accusing on another of dishonesty or corruption. The Joker attempts to convince Batman to give up on society. He insists when Batman is no longer needed to protect Gotham or when a person to blame is needed, they will cast Batman out and hate him. The Joker shows no remorse for his actions and actually attempts to justify them by making a mockery of justice, order, and morals.

In addition to his lacking conformity, The Joker has no regard for society or its safety, and constantly breaks the law (American Psychiatric Association, 2000), putting the lives of innocent citizens in jeopardy. At the opening of the film, the Joker hires a group of criminals to rob a bank, more specifically, a bank filled with the money of Gotham city's biggest mob bosses. This event is evidence of the Joker both turning people against each other and breaking the law. Disguised with a mask, the Joker hires the bank robbers and secretly tells each of them to kill the other as soon as they finish their 'job' (i.e., drilling into the safe, disconnecting the phones and alarms in the bank) to get a bigger cut of the money. This action is also an example of him manipulating people for his own personal gain (American Psychiatric Association, 2000). Ultimately, he ends up the last man alive and unmistakably gets all of the money.

The crimes the Joker commits range from blowing up police vehicles with bazookas to cold, calculated murder. The estimated number of murders he directly committed in the film is approximately eight. His victims included police officers, a judge, a police commissioner, and attorneys. His lack of respect for the judicial system or any kind of system is evidenced by many of his targets being political figures (American Psychiatric Association, 2000). In a discussion the Joker has with Harvey Dent (a.k.a., "Two Face"), Gotham City's vengeful District Attorney, he advises introducing anarchy and upsetting the order. The Joker is an agent of chaos and, to him, chaos is fair. He refers to the authorities as "schemers" and tells Dent being a schemer is what got him (Dent) where he is, lying in a hospital bed with a badly deformed face and a dead fiancée (Rachel Dawes). The Joker is trying to show "schemers" the pathetic nature of their attempts to control outcomes for others."

The Joker's character continuously and repetitively uses deceit throughout the film. He has two scars on each side of his mouth, creating the appearance of a gruesome smile. During the film, he tells two completely different stories about the origins of his scars: the first involved his childhood in which his abusive, alcoholic father carved the scars on his

face. In the second story, the scars on his face were self-inflicted in an attempt to comfort his wife, who had recently become deformed. Both stories were disturbing and elaborate. The truth behind his scars was not revealed in the movie. In addition to his deceitfulness pertaining to his gruesome scars, the Joker's alias is also indicative of his attempts to deceive and hide his true identity (American Psychiatric Association, 2000). When the police ran his fingerprints, they found no matches, giving evidence he purposefully burned his fingertips. The Joker even selects individuals with mental illness to work for him because he sees them as easier to influence and control.

The antisocial personality disorder symptoms of impulsivity and failure to plan ahead (American Psychiatric Association, 2000) did not fit the Joker's character. One of the most memorable scenes of the movie is the one in which he told Batman the whereabouts of Harvey Dent and fiancé, Rachel Daws. Batman had only minutes to save one of them. The Joker forced him to choose because he wanted Batman to break his rule by killing an innocent person. Batman was forced to decide who would live and who would have to die. The Joker told Batman his life-long friend and ex-girlfriend (the person Batman wanted to save) was at a specific location, a lie to manipulate him. Batman went to this location in search of Rachel but instead found and saved Dent. This fabrication caused a vendetta between Dent (now Two Face), and Batman because Two Face blamed Batman for Rachel's death. The Joker constantly manipulated people. He was not impulsive; in fact he was intelligent and careful in his planning.

The level of aggressiveness the Joker displays does not reach the point where he loses control of his situation (American Psychiatric Association, 2000). He seemed irritated whenever someone called him a "freak." One of the mob bosses consistently showed disrespect for the Joker by referring to him as a "freak" and a "clown." The Joker fooled this mob boss into believing he was dead and then killed him. Innocent people were the target of his frustration and anger as well. At a high society party, the Joker came to look for Batman and while looking for Batman, proceeded to attack innocent bystanders, shoving, grabbing, and punching people for no apparent reason. One of the Joker's signature moves was to stick the blade of his knife in someone's mouth and tell the story of how he got his scars, insinuating his plan to give the person the same scars he had. He appeared to find the fear he inflicted on innocent people entertaining and comical.

The Joker's reckless disregard for others was apparent throughout the film (American Psychiatric Association, 2000). Several scenes show The Joker attacking a location with many people using firearms and explosives. One of the most suspense-filled scenes was when the Joker put a bomb in a local hospital and said if Batman's identity was not revealed, he was going to blow the hospital up. Because his request was not met, The Joker blew up a hospital as promised. His disregard for others was also demonstrated by the comment he uses a knife because guns are too quick (Roven

et al., 2008). He would threaten and risk the life of anyone he needed to, typically done so to prove his point morality does not exist.

In another memorable scene, the Joker put bombs on a ferry transporting prisoners, and another on a ferry transporting innocent Gotham citizens. He told both ferry personnel they had until midnight to blow up the other ferry. The passengers had to decide either their lives or the people's on the other ferry, but only one would be spared. Whoever decided first, lived. This behavior is another example of The Joker, through manipulation, attempting to turn people against each other (American Psychiatric Association, 2000). Neither of the ferries detonated the bomb on the other boat letting passengers on both ferries live. When the Joker became aware of this outcome, he joked that you "can't rely on anyone these days" and attempted to blow up both ferries himself (Roven et al., 2008).

The Joker repeatedly fails to sustain consistent work behavior or honor financial obligations. He claims that his "occupation" is being a criminal, which he believes he does very well (Roven et al., 2008). He has no desire for money or material things. With the exception of purchasing guns and explosives, he does not spend money and sees no need for it. He has no financial obligations and acknowledges none of his responsibilities (e.g., being a law abiding citizen).

Although the film did not disclose enough information about the Joker's childhood to determine if there was evidence of conduct disorder before the age of 15 years, his character demonstrated several symptoms of antisocial personality disorder according to the DSM-IV-TR (American Psychiatric Association, 2000). The symptoms the Joker's character possessed included: failure to conform to social norms, deceitfulness, irritability and aggressiveness, reckless disregard for the safety of himself or others, consistent irresponsibility and lack of remorse. Two symptoms, impulsivity and failure to plan ahead, were not exhibited strongly in the Joker's character. Heath Ledger reportedly had to seclude himself from family, friends, and co-workers as he attempted to prepare for his role as The Joker. Antisocial personality disorder is not something to be exhibited on a whim. For a person not diagnosed with such a disorder, it was a difficult character to portray. Heath Ledger was extremely dedicated to his role, and although he did not have the opportunity to see the product of his devotion, the role he played was historic.

The history of antisocial personality disorder itself is one that used to be intertwined with another disorder, psychopathy. The diagnosis of antisocial personality disorder according to the DSM has evolved over the years. In the past, The Joker's character may have been diagnosed as psychopathic traits. The two terms have often been confused because of their association with criminal behavior; however differences are apparent. For example, antisocial personality disorder is characterized by criminal behavior, whereas psychopathy is a set of personality traits leading to criminal behavior and only a feature of antisocial personality disorder (Gurley, 2009).

The role of a psychopath in the movies is usually portrayed as a callous, calculating, and aggressive individual (Hesse, 2009). Such roles are not complete examples of individuals with this disorder and often make hating the villain an easy task.

The character of the Joker in *The Dark Knight*, among his many traits associated with antisocial behavior and criminal behavior, creating a charming and humorous individual. The Joker's character assisted in desensitizing the audience to the violence committed in the movie. In a study conducted to investigate how participants responded to violence and comedy in the media, Fanti, Vanman, Henrich, and Avraamides (2009) found repeated exposure to violence can desensitize viewers, causing participants to feel less sympathetic toward the victim and enjoy the violent scenes more. The Joker committed violent acts with a charm keeping the audience laughing at his jokes, even in the midst of a gruesome murder. He was certainly not a traditional villain but an excellent example of an entertaining and cunning criminal.

Although such combinations of violence and humor can lead to desensitization, *The Dark Knight* was an example of film portraying mental illness in a creative and useful way. Films can be useful tools in helping students understand, visually, aspects and diagnosis of a disorder (Bhugra, 2003). Given the analysis presented in this article, the Joker is perhaps the most popular face of antisocial personality disorder in the cinema.

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Mania and Creativity in *The Devil and Daniel Johnston*

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The 2006 documentary *The Devil and Daniel Johnston* (Hope & Feuerzeig, 2006) chronicles the life and work of songwriter Daniel Johnston. Johnston became popular in the underground Austin, Texas and New York music scenes in the 1980's and 90's due to his unique brand of stripped-down home recordings and raw live performances, despite a life-long battle with diagnosed bipolar disorder. Today, Daniel Johnston entertains a large cult following of fans who are fascinated with his music, visual art, and history of mental illness. The documentary, directed by Jeff Feuerzeig, paints an intimate picture of Daniel's success and struggle through a wide variety of interviews with Daniel, his family, and his friends. In addition, the film contains archival material including home movies and Daniel's journal entries recorded to audio cassette. Although the film's main focus is not to specifically highlight Daniel's mental illness, the nature of the interviews and first-hand footage provides valuable material for the study of Daniel's disorder and treatment history. In the present article, I aim to present material from the film and employ criteria from the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000) in order to support the diagnosis of Bipolar I disorder for Daniel Johnston. Additionally, I discuss the connection between mental illness and creativity in regards to its presentation in the film and existing clinical research.

Bipolar Disorder

Bipolar disorder is a mood disorder characterized by fluctuations between states of elevated and depressed mood impairing the functioning of the afflicted individual. Impairment will often manifest as problems at work or at home due to the impulsive behavior associated with manic states or the extreme lethargy and suicidal ideation, which can accompany major depression. For an individual to be diagnosed with bipolar I disorder, he/she must have experienced at least one period of his or her life that qualifies as a full manic episode and may or may not have experienced a period that qualifies as a major depressive episode. For an individual to be diagnosed with bipolar II disorder, the individual must have experienced at least one major depressive episode and one hypomanic episode, which involves manic symptoms of lesser intensity and duration. For both diagnoses, the individual also must have "clinically significant distress or impairment in social, occupational, or other important areas of functioning" (American Psychiatric Association, 2000 p. 388).

The Devil and Daniel Johnston portrays Daniel as having both manic and depressed symptoms interfering with his life. For example, after spending a few years trying to make it on his own as a musician in Austin, Texas, Daniel became very depressed and obsessed with death. Daniel's manager and friend, Jeff Tartakov, is interviewed in the film about this

time period. Tartakov states Daniel's obsession with death was unusual; he sold most of his possessions and artwork, and many of his friends feared that he was preparing to kill himself. A home video of Daniel during this period of depression shows him saying, "Better to die, ladies and gentlemen, and live forever. And that is what I intend to do." This portion of the film is the best exposition of the depressive symptoms of Daniel's bipolar disorder. Reasonably we can assume other incidents were present, considering he has been diagnosed as bipolar by trained clinicians throughout his life. The film, however, concentrates much more on the manic symptoms of Daniel's bipolar I disorder, and hence mania is the focus of the remainder of this essay.

Manic Episode

According to family members, Daniel's mental illness began to emerge in his early twenties, the typical age range for onset of bipolar disorder (Jamison, 1995, p. 62). After Daniel experienced difficulty adjusting to college life at Abilene Christian College in Abilene, Texas, his parents sent him to live in Houston with his brother, Dick. While in Houston, Daniel began recording music in his brother's garage. A popular image among Daniel Johnston fans is Daniel as scrawny young man with a mop of dark curly hair, sitting on a weight bench, and creating the simple yet introspective music that would later become his trademark album *Hi, How Are You?* In the film and on the album itself, Daniel claims to have had a nervous breakdown during the time he spent recording in Houston. Material in the film documenting Daniel's early foray into music recording can be used as evidence to illustrate the nervous breakdown Daniel speaks of was actually a manic episode suitable for a diagnosis of bipolar I disorder.

A manic episode is defined as "A distinct period of abnormally and persistently elevated, expansive, or irritable mood, lasting at least one week (or any duration if hospitalization is necessary)" (American Psychiatric Association, 2000, p. 362). Although the film is not specific about the length of time Daniel initially exhibited manic symptoms, it is reasonable to assume the increased impulsivity and grandiosity observed by his family occurred over an extended period of time (i.e., the duration of several months spent at his brother's home). Although Daniel was not hospitalized as a result of the first episode, he did undergo multiple involuntary hospitalizations later in life due to erratic and impulsive behavior. Several of these stemmed from incidents involving violent acts such as assaults on his manager and an elderly woman. However, these specific episodes were complicated by drug use, and the film lacks further details about them that would aid in a complete diagnosis.

The diagnosis of a manic episode also requires the presence of at least three of seven specific symptoms. These symptoms include: inflated self-esteem or grandiosity, decreased need for sleep, appearing more talkative than usual, flight of ideas and racing thoughts, distractibility, increased goal-directed activity or psychomotor agitation, and excessive involvement in pleasurable activities (American Psychiatric Association, 2000). When Daniel began working on his

music, he immediately began to express feelings of inflated self-esteem and grandiosity. Despite having no released music or experience with performance, Daniel began comparing himself to the Beatles. He was recorded in an audio message to his friend David Thornberry saying, "I'm working on the new release. I sound like some sort of MTV person, don't I?" (Hope & Feuerzeig, 2006). Several accounts from family and friends also describe Daniel as truly believing he was creating a masterpiece. Although it would have been beneficial for Daniel to be confident in his music, his grandiose views and aspirations were disconnected from the reality of his situation. In reality, Daniel was an artist in the infancy of his creative career with little to no technical ability and no experience as a performer in the world of professional music.

Daniel's brother Dick is quoted as saying, "Look Dan, you can't stay up all night. You're going to have to go to bed at some decent hour and live life with the rest of us" (Hope & Feuerzeig, 2006). This statement indicates Daniel was not sleeping much and was working incessantly in his brother's basement, satisfying a second criterion for diagnosis of mania. This behavior can also be linked to a possible increase in goal-directed activity. Daniel recorded his music with a microphone and tape recorder, and this lack of equipment to make overdubs forced him to re-record sections of tape and even entire albums in order to produce duplicates or fix mistakes. Comer (2010) states even people with mild mania can produce large amounts of work. Although it cannot be proven Daniel's success, despite his lack of equipment, was caused by his mania, his active state would have aided in accomplishing such a meticulous task.

The final symptom presented in the film that points to a diagnosis of Daniel's manic episode occurred shortly after he moved out of his brother's home to live with his older sister, Margie. One morning, Margie awoke to find Daniel had not come home the previous night, a behavior not typical of him. The previous day, Daniel had purchased a moped and unexpectedly ran off to join a traveling carnival, leaving his family with no information about his location. This type of behavior exemplifies the participation in activities with potentially harmful consequences, and the impairment of judgment associated with a manic episode.

As with most mental disorders listed in the DSM-IV-TR, the diagnosis of a manic episode requires behavior and symptoms to cause significant distress or impairment (American Psychiatric Association, 2000). In the case of Daniel's first episode while living with his siblings in Houston, his behavior caused problems in his family relationships as well as impaired his ability to hold a steady job and function without extensive help. Daniel's family wanted to help him get on his feet and live independently. Daniel expressed his irritation with their concern by saying that they were, "treating him as if he were a bum" (Hope & Feuerzeig, 2006). *The Devil and Daniel Johnston* goes on to illustrate how Daniel became a popular figure in the Austin music scene and eventually moved to New York, where he reached the peak of his artistic career in the 1990's. However, the entire story is riddled with episodes of mania and depression

leaving him hospitalized on several occasions and caused his interpersonal relationships to suffer; Daniel's story is one of overcoming adversity in the face of mental illness. With proper familial support, medication, and treatment, Daniel Johnston has been able to emerge as a creative force, able to travel and perform more today than he ever could while suffering heavily from bipolar disorder.

Creativity and Mental Illness

Many people believe mental illness is tied to creativity and artistic expression, leading to the perception of the "mad genius" stereotype (Comer, 2010, p. 268). *The Devil and Daniel Johnston* addresses this issue, citing the common example of Vincent Van Gogh, who cut off his own ear. Researchers such as Jamison (1989) and Ludwig (1988) have attempted to explore connections between mental illness and creativity, in particular mood disorders. Because it is difficult, if not impossible, to construct true experimental designs related to this topic, researchers have taken various correlational and quasi-experimental approaches instead.

One approach is to compare samples of living artistic professionals to the general population with regards to their histories of mental illness. After interviewing 30 creative writers at the Iowa Writers' Workshop, Andreason (1987) found a large percentage of participants (80%) had a history of mood disorders, with 43% of the sample having a history of bipolar disorder. In a similar study, Ludwig (1998) found individuals in artistic professions had a higher lifetime rate of general mental illness than people in investigative or scientific professions. Differences in lifetime rates were also found among varying types of creative professions. Expressive artists such as painters and sculptors showed the highest rate of mental illness, followed by performance artists such as musicians. Following this information, it is pertinent to note that Daniel Johnston is both an expressive artist who pursues visual art and a performance artist who pursues music.

Information obtained from correlational studies involving living artists raise questions about how certain psychological disorders could have positive effects on the creative process. In a study of 47 poets, artists, and writers, Jamison (1989) found all participants, regardless of mental history, self-reported states of hypomania (i.e., elevated mood) when asked to retrospectively describe their mentality at times of intense creative activity. Jamison (1993, p. 105) stated, "fluency, rapidity, and flexibility of thought on the one hand, and the ability to combine ideas or categories of thought in order to form new and original connections on the other," are common features to both creative and hypomanic thought. This statement suggests states of mania change the cognitive processes of the artist, allowing him/her to produce more creative work. Ramey and Weisberg (2004) and others have used a retrospective case study method in order to compare the lifetime patterns of creativity and mood fluctuations in eminent artists. These studies use biographical information to determine whether an artist (usually deceased) could have been accurately diagnosed with a mental disorder, such as

bipolar disorder, and identify periods of time when the artist exhibited primarily manic or depressive symptoms. The artist's catalog of work is then examined to see how the quality and quantity of his/her work is related to those periods of time. For example, studies of the poet Emily Dickinson and composer Robert Schumann, both of whom suffered from mood disorders, created significantly greater quantities of work during periods of mania or hypomania (Ramey & Weisberg, 2004; Weisberg, 1994). However, only Dickinson was shown to have created higher quality work during such periods. These results support the hypothesis manic states are related to increased frequency of creative thoughts, but other issues, such as motivation, may be factors in determining overall quality of the creative product. The causal link is also up for debate; it is not clear if mania jumpstarts the creative process, or if creativity induces mania (Ramey & Weisberg, 2004).

In this essay, I have attempted to establish material from *The Devil and Daniel Johnston* exemplifies Daniel was indeed experiencing manic symptoms during times of peak creativity. One section of the film highlights the various drugs used in treating Daniel's bipolar disorder; another portion portrays interviews with Daniel stating his feelings his condition has a direct effect on his artistic process. This portion of the film mentions a variety of medications prescribed to Daniel over the years, many of which had negative effects on Daniel's well being, despite suppressing his mania. In one home movie clip, Daniel discusses the effect of the drug Haldol on his creativity stating, "I couldn't write a song if I tried" (Hope & Feuerzeig, 2006). Daniel refers to 1997, the year he spent taking Haldol, as his lost year. Daniel also stopped taking his medications several weeks before he was scheduled to make various stage appearances, because he felt his performance would be better if he were more "real" (Hope & Feuerzeig, 2006). The behavior of refusing medication for creative or other purposes is common among many bipolar individuals, and is an obstacle to treatment of the disorder. Jamison (1995) addresses this issue, stating although the patient may feel that medication holds them back in some way, the symptoms of manic-depressive illness worsen over time and end up hindering a person's ability to function, let alone create. This effect is very apparent in the case of Daniel Johnston, who often suffered negative consequences from his failure to stay on his medication. In the emotional climax of the film, Daniel's father is interviewed about an incident following Daniel's performance at the 1990 SXSW Music Festival in Austin, Texas. Daniel had been secretly avoiding his medication for a few weeks before the show, and on the ride home in his father's single engine airplane, Daniel had a violent outburst whereby he grabbed the controls and sent the plane plummeting nose-first into the trees below. Amazingly, both Daniel and his father survived the crash, but the incident was a frightening reminder of how volatile Daniel's disorder could be. Although the negative consequences of foregoing treatment can far outweigh the side effects of medication, the ultimate goal of treatment of mental illness is overall personal wellness. Therefore, it is

important for practitioners to be aware of and try to balance the effects of medication on creativity, helping individuals like Daniel Johnston lead fulfilling lives.

Conclusion

The Devil and Daniel Johnston provides a compelling look at the diagnosis and treatment of bipolar disorder. The film highlights the debilitating effects of mania as well as one artist's struggle to overcome such obstacles. Daniel's story also raises many questions about the nature of mental illness and its effect on the unique human ability to create. By studying the lives of Daniel Johnston and many others like him, researchers hope to come closer to understanding the minds of those who enrich the world through artistic expression.

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Gender Identities Created by the Environment

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Abstract

In researching the influences and factors creating a gender identity, there is evidence the roles vary throughout different cultures and societies. In focusing on the impermanence and variations throughout societies, gender is not a biological trait but learned through interactions and experiences. The malleability of a child allows for easy absorption of the specific gender characteristics and his or her natural inclinations to fit into the socially acceptable gender roles. The influence of parents and friends are constant reminders a child of the appropriate gender behavior for children. Lastly, the case studies conducted by various researchers illustrate the dominant effect an environment has when one is identifying with and adjusting to a specific gender role.

To assume gender is an innate and natural attribute within us is to also claim it is uniform and does not vary throughout world; a woman in South Africa contains the same biological foundation and identity as a woman in Iceland, yet Strong, Yarber, Sayad and DeVault (2008) describe gender as "the social and cultural characteristics associated with being male or female" (p. G-5). To assume biological and universal genders could exist is contradictory and seemingly impossible if gender is socially and culturally created. However, the anatomies of female and male sexes are universal and biological. Because of the historically close relationship between the notion of gender and biological sex, an uninformed person may not realize the difference between the two. Although sex is organic and biologically inevitable, gender is a socially constructed idea that humans create, restructure, and consciously or subconsciously embrace.

Gender schema theory proposes people from an early age are cognitively divide information based on sex-typing. Individuals correlate certain objects and characteristics with a specific gender (Bem, 1981). Gender schemas facilitate the basic classification a child uses to organize what is for a boy and what is for a girl. This classification is applied to behaviors, toys, hobbies, and even emotions expressed. A child's parents influence him/her to create this simplistic filtering system whereby objects are divided based on a created concept of gender. In addition, characteristics are identified as masculine or feminine and a child quickly learns appropriate gender behaviors. This filtering system and division of behaviors into two gender roles is supported and reinforced by one's various social surroundings. A child begins to process information according to gender, classifies, and develops an 'us and them' mentality; hence, certain gender-appropriate behavior is approved, whereas other behavior is reprimand-

ed. This gender socialization begins as soon as the sex of a baby is determined. Most parents form ideas as to how the child's life will result, decoration color schemes are chosen, and the toys and activities are already mapped out for the next 18 years of a child's life continuing through adulthood.

Like a sponge, a child soaks up cues, knowledge, and norms in search of the gender role he or she understands and approved by society. Social factors convince us to accept and identify with either female or male-typed roles. These roles are expressed differently throughout the world and in some cultures and points in history more than two roles can exist. Zosula et al. (2009) studied the gender labels created by toddlers and their implications for gender-typed play. Journals recorded by the mother reported advancements in language and the ability for the child to verbally label a specific gender. By correctly labeling a boy or girl and in knowing one's own gender, the child has clearly developed knowledge of gender identities and the associations used to differentiate them. Zosula and colleagues confirmed in their research toddlers were capable of acquiring gender labels based on socialization, and as a result would be more likely to play with toys considered stereotypically fitting of the child's gender. Children not developing the use of gender labels were less likely to engage in gender-stereotyped behaviors. A child having the ability to allocate gender labels, because he/she was cognizant of his/her own gender was more likely to engage in the stereotypical gender-typed play. This study demonstrated the impact of environmental expectations on children as young as 17 months, and also demonstrates children's adaptation to fit into specific roles after they become aware of gender categorization. The impact of this social influence research demonstrates gender is not innate but developed.

Many studies have been conducted to demonstrate the influence environment has on molding a child's behavior and the views the child holds of him or herself. Similar to Zosula et al.'s (2009) investigation of children's early adaption to the gender appropriate role, Martin and Fabes (2001) examined the effect of same-sex peers on children behavior. In their study, when a child played with other children of the same sex, the child adapted behavior similar to the same-sex group. Even within a few months, a child can adapt his or her preferred activities to match the environment, or to be congruent with same-sex peers' gender (Martin & Fabes, 2001). Children's peers, in this research, were a crucial ingredient of the environment in gender typing.

In most cultures around the world, a clear division between roles of men and women are obvious and expected. However, not all children grow up to embrace these restricting roles, and variations can result. Gender Identity Disorder (GID), homosexuality, and transgenderism are characteristics producing behavior different to a society's norms; however, these alternative lifestyles are only viewed as abnormal because society has created inflexible ideas of gender (Hegarty, 2008). This simplistic way of thinking limits the development of a child and hinders the ability for one to explore

personal interests and fascinations, as immediate social disapproval will result if the behavior is applied to the 'wrong' gender. In addition to a child's alternative behaviors or interests in accordance with one's anatomical sex, a medical complication can also create GID. In lives of children with an unclear anatomical sex or complications such as a botched circumcision in which the genitals are damaged, the environment might be fully relied upon to enforce a normal development into a specific gender role. The evidence of case studies and follow-ups on children diagnosed with GID shows the impact of environment with regard to creating gender.

Child rearing has always been a powerful influence on psychosexual development but in cases of intersexuality, a person can be born with atypical physical genitalia. Studies conducted in the 1950's by Money and his colleagues (as cited in Zucker, 2002) confirmed social environment and rearing demonstrate a greater impact on creating the gender identity as only five out of 105 intersexual patients developed a gender identity different from the gender initially assigned. This evidence suggests when a baby is initially identified as intersexual, the physicians and parents team up to decide the specific gender environment in which to rear the child. Only five of the 105 children grew up and questioned the doctor's and parents' decision or struggled to embrace the assigned gender identity. These successful cases demonstrate the impact an environment can have on creating a gender for a child when the sex is unclear. With such a small percentage denying the gender role chosen and surrounding them, it is difficult to consider biology as a more powerful factor.

To understand the impact socialization and family have on gender development, society must first acknowledge the diversity of gender ideals around the world. The environment a young, American girl is surrounded by may not contain the same behaviors or material objects that an Aboriginal girl in Australia is channeled toward. In fact, Aboriginal girls in Australia are not surrounded by the color pink, dolls, or ballet classes. China is another country in which gender roles are inconsistent with those of North America. The life of a young girl in Southern China consists of staying at home to perform jobs revolving around manual labor, raising younger siblings, and performing domestic chores to ensure a smooth-running household. The color of clothing or the toys one plays with are trivial to a young girl in China (or other countries) and she would not be naturally inclined to choose the same activities as young American girls (Anderson & Moore, 1993). This differentiation between cultures reveals the subjective gender identity formed by a culture and not naturally born within us.

Another unique example of a difference in gender roles is the Hijra community located in India. This culture embraces a third gender not existing in other cultures. This extra gender cannot be easily classified into a female or male role because the reinforced behavior is combined from specific qualities of both genders. From an early age, a child is taught the characteristics one must acquire to be considered a mem-

ber of this third gender, and like being female or male gendered, after a short while the behavior seems almost natural (Rogers, 2005). This variation in gender shows a third gender cannot be a biological and innate creation, but instead is a cultural creation specific to India. In addition to the effects of socialization to reinforcing gender-specific behavior, the third gender also reveals more than two universally accepted genders can and do exist.

Lastly, the African country of Sudan also provides a variation as some men express the behaviors and personality traits of a woman in order to develop and function as a Shaman (Pratt, 2009). Environmental and social pressures enforce a role the Shamans have to fulfill, and like any other gender, has to be learned and acquired with experience. The person is not born as male, female, or Shaman gendered; rather, the culture provides the knowledge, tools and importance of one embracing the specific and assigned gender role. These differences through cultures and time have demonstrated one does not become a certain gender because it is in his or her genes to do so; instead, the roles we choose to embrace are a result of outside influences. This learning process allows any child to develop into the role that the culture demands him or her to fulfill, whether it be to grow up into a woman, man, or Shaman.

Gender identities and roles are created, altered, and differ between cultures and various societies. In North America, the determination of one's sex is usually the precursor to future pressures to embrace a specific gender. Researchers identified the influence of one's social environment and provide historical cases of gender as evidence of children being forced to embrace gender-specific behaviors. Sex to gender identity is a connection existing because societies impose this belief on its members. A person should be free to pick up any interest, vocation, or color of clothing regardless of what parents and members of the community think is gender-appropriate. I argue, our society is limiting itself to follow robotic norms, and until we challenge these gender expectations, our creative progress will be hindered.

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An Argument for the Innateness of Gender Identity

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Abstract

Although gender itself is a social construct, it is important to recognize possible other factors in one's gender identity, such as biology and genetics. In this examination, one must look at research involving prenatal hormones and brain structures, androgyny and the effects of culture, correlational research concerning sexuality, twin studies, and examinations of intersex persons who had sex reassignment surgery as infants.

When someone announces that they are having a baby, the first question asked is with regard to the sex of the fetus. Our culture is dichotomized when it comes to sex, and a person's sex is usually the first thing we notice. Sex is the biological and genetic composition of a person, usually male or female, whereas gender refers to the social or cultural aspects of being male or female. A person's gender identity is their sense of belonging to one sex, whether the category is male or female (Vasey & Bartlett, 2007).

We have no control over our biological sex – it is determined by chromosomes long before we are born, and is therefore innate. There is an ongoing discussion among professionals, however, concerning whether gender identity is also ingrained before birth. In this discussion, we must acknowledge gender is a social construct, but research shows gender identify is not solely socially defined; therefore, it is necessary to consider possible biological or genetic contribu-

tors to gender identity, as well as the manifestations of this research.

The Role of Hormones

Prenatal male sex hormones, also called androgens, have been shown to affect a person's sex and gender identity later in life. Throughout pregnancy, a fetus' chromosomes signal the production of these hormones at designated developmental timeframes. When examining hormones in fetus growth, androgens direct the development of external genitalia, as well as certain areas of the brain. Fetuses begin with identical genitalia, but are differentiated according to the levels of androgen present – higher levels signal the development of a penis and testes, and lower levels signal the development of a clitoris and labia (Hines, 2003).

The most well-known and oft-researched androgen is testosterone, and elevated levels of testosterone may trigger male-typical behavior or identity (Hines, 2003). Testosterone is present at elevated levels in male fetuses between the eighth and twenty-fourth week of gestation, and peaks at week 16. Sometimes during pregnancy, there can be abnormalities in the levels of hormones. Congenital adrenal hyperplasia (CAH), for example, is a disorder caused by a deficiency in an enzyme needed to produce cortisol. Because of this deficiency, precursors to cortisol are pushed into the androgen pathway, leading to higher androgen levels in females with the disorder (Hines, 2003). In one large-scale study of pregnant mothers of babies with CAH, it was found women who had higher levels of testosterone during their pregnancies gave birth to daughters who exhibited higher levels of male-typical play behavior than daughters whose mothers had lower levels of testosterone during their pregnancies (Hines 2003).

More research on androgens and their effect on gender identity stems from studies involving persons with Androgen Insensitivity Syndrome (AIS). Individuals with this disorder develop externally female, but do not have internal reproductive organs and have the XY chromosomal make-up. Thus, they are biologically male, but develop externally female (Looy & Bouma, 2005). The majority of individuals with AIS have a female gender identity, despite being genetically male, because they did not have the receptor for androgen during development in the womb (Looy & Bouma, 2005).

Cross Cultural Research

Another area of research to support the idea that gender identity is innate is that of cultural studies. Opponents who claim that gender identity is socially defined are quick to point to studies in which children follow cultural norms to form their gender identity. However, upon closer examination of the literature, some studies reveal people in an accepting culture may still feel at odds with their physical sex.

The Samoan culture exemplifies this discrepancy in sex and gender. In this culture, there is a very high level of social tolerance toward males who are more feminine. Known locally as *fa'afafine*, these biological males are homosexual,

and express themselves in a variety of ways, though many are quick to distance themselves from typically male stereotypes. Many engaged in female-typical behaviors in childhood and demonstrated great dislike toward male-typical behaviors, reporting even more femininity than many of the biological females included in the study. These biological males are overwhelmingly supported by their culture as a whole when identifying as *fa'afafine* (Vasey & Bartlett 2007).

One would assume then, if gender identity is dominated by environmental cues, these individuals would be content with their biological male genitalia because their gender identity is accepted as more feminine. However, a portion of these men expressed dislike or even hatred of their male genitalia, and a desire to surgically change their genitalia. This dislike suggests discomfort with one's sexed body may exist independent of attitudes toward cross-gender behavior and identity. Specifically, even though their culture supports their femininity and feminine gender expression, some of the males in the Samoan culture are internally motivated to alter their male genitalia. This phenomenon lends support to a biological basis for gender in addition to the socially defined one (Vasey & Bartlett, 2007).

One can also look for cultural research applicable to gender identity in cross-cultural research on gender norms. If gender identity was solely socially constructed with no biological basis, an expectation follows gender norms would differ greatly among the widely varied cultures of the world. In a study of gender-typed personality traits spanning 26 different cultures, this variance was less than would be expected. Although there is some variety from one culture to another, gender differences between cultures is relatively subtle. For example, women in most cultures show high scores in the areas of Neuroticism and Agreeableness (Costa, Terracciano & McCrae, 2001).

Gender Identity Disorder

Research on gender identity also includes studies on people with Gender Identity Disorder (GID). When someone has a strong cross-gender identification and persistent discomfort with their biological sex, they are said to have a GID. Research shows that one's sexual orientation is widely thought to be innate and determined by a variety of biological and genetic factors. Although sexual orientation and gender identity are different constructs, there have been several correlational studies that look at the relationship of childhood GID diagnosis and an adult homosexual orientation. One study reported that 75% of boys diagnosed with GID reported homosexual or bisexual fantasies by the age of 19 (Coolidge, Thede, & Young, 2002). Although correlational in nature, these findings suggest that both sexual orientation and gender identity are innate (Coolidge et al, 2002).

Some of the strongest research supporting the innate nature of gender comes from studies of twins with GID. Obviously, certain aspects of our appearance or makeup are heritable (e.g., our facial structure or our height). Research has shown

that this may also be the case for gender identity. Coolidge et al. (2002) studied 314 twins between the ages of four and 17 years to see if there was a connection between twins related to exhibiting behaviors typical of a GID. The results of the study showed a 62% heritability rate for GID among twins, and “the best fitting model suggested that GID is highly heritable” (p. 256). This finding suggests genetic components are strong contributors to an individual’s gender identity, in addition to other environmental contributors. A case study of twins from Macedonia showed similar findings. Twin sisters raised by their mother started showing male-typical behaviors at a young age, and by puberty began to bind their breasts and cut their hair short (Knoblauch, Busjahn & Wegener, 2007).

Sexual Reassignment

For many years, the standard was to assign babies with ambiguous genitalia to the female sex because it is easier to make a vagina than a penis. Surgery would be followed up with counseling intended to help the girl deal with any future obstacles. This medical philosophy (i.e., that it is easier to surgically alter a baby to have female genitalia), is reflected in the statistics, as 96 percent of intersex infants are made into girls (Hausman, 2000).

One of the most famous cases of infant sex reassignment surgery is that of Joan/John. When a botched circumcision left a 7-month-old male twin with irreversible damage to his penis, doctors recommended sex reassignment surgery and to raise the child as a girl, with the correct medical and surgical intervention throughout her life. The parents agreed, and the child was reared as a girl – Joan – next to her twin brother (Hausman, 2000).

There were signs throughout Joan’s childhood, however, suggesting she was uncomfortable with her feminine role (e.g., wanting to shave her face instead of wearing lipstick, and tearing off dresses when they were put on her). Eventually, as an adult, Joan opted for sex reassignment surgery again and began to live as a man. Many experts have claimed that this case demonstrates gender identity is innate because a biological boy raised as a girl eventually opted to change his body back to what he felt matched his brain (Hausman, 2000).

Other studies have shown similar results with biological males assigned the female sex at birth because of a birth defect of the pelvis known as cloacal exstrophy. These biological males were born with phallic inadequacy or no penis at all, and were often re-assigned the female sex at birth with surgery. In a study by Reiner and Gearhart (2004), more than 50% of participants in this situation eventually began living as a male despite being raised as a female. The parents of these individuals reported their children were much happier after the transition to living as a boy, and all of the children reported having thoughts about growing up to be a man. Eighty percent of the individuals had sisters who were raised in the same environment. Nevertheless, these children showed little to no interest in female-type play or toys and

instead gravitated toward and played almost exclusively with male-typical toys. This behavior suggests the male gender identity of these subjects was innate and second nature to them, despite efforts of their parents to raise them as a female (Reiner & Gearhart, 2004).

One’s gender identity is an important part of who we are. Gender helps us determine what societal and relational roles to fill, and gives a sense of self. Much discussion has taken place about whether one’s gender identity is innate or if it develops over time. The research shows, despite the fact gender is a cultural concept; biology is a key component in determining one’s gender identity. There are a variety of areas of research contributing to this school of thought, including studies on prenatal hormones and brain structures, androgyny and the effects of culture, correlational research with homosexuality, as well as twin studies and examinations of intersex individuals who had sex reassignment surgery as infants. The results of all of these studies point to the importance of considering the role of biological factors in the development of gender identity.

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Psychologically Speaking

The Engaging Odyssey of a Humble Psychologist: An Interview with Albert Bandura

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and Richard L. Miller
University of Nebraska at Kearney



Albert Bandura was born in Mundare, Alberta a town whose one and only school had limited resources. This meant that students' learning was often self-directed, an important early experience for Bandura. His parents were immigrants from Eastern Europe who emphasized the importance of family and schooling. After high school Dr. Bandura went to the University of British Columbia where he took an introductory psychology course because it fit his course schedule. He graduated three years later with the Bolocan Award in psychology and went to the University of Iowa to complete his graduate work. At the time the University of Iowa was central to the psychological study of social learning theory. Dr. Bandura completed his Master's in 1951 followed by a Ph.D. in clinical psychology in 1952. In 1953 he became a faculty member at Stanford University, where he still is today. Dr. Bandura has studied many different topics over the years, including adolescent aggression, children's abilities to self-regulate and self-reflect, and self-efficacy. Perhaps his best-known experiment was the Bobo doll study, which resulted in Bandura incorporating social modeling into his highly influential social learning theory. Dr. Bandura is also widely published and has received various honorary degrees and awards all over the world, including the prestigious Grawemeyer Award for his contributions to psychology. A 2002 survey ranked him as the fourth most-frequently cited psychologist of all times, and as the most cited living one. Dr. Bandura and his wife Virginia have been married since 1952 and have two daughters and identical twin grandsons that they greatly enjoy spending time with.

Miller: The *Journal of Psychological Inquiry* publishes undergraduate student research. In addition, there is a Special Features section that serves a variety of purposes. It is a forum for student essays on topical issues and also features, from time to time, articles that provide information of interest to both faculty and students related to the research process. We have asked you for this interview in order to explore your thoughts on the role of undergraduate research in teaching. The audience the interview is primarily designed for are students, and secondarily for faculty. Particular emphasis is on the scholarly component of teaching and learning and how that relates to students conducting research and subsequently presenting and

publishing the results of that research. The two students who will be conducting this interview are both undergraduate students at the University of Nebraska at Kearney. Destinee Nelson is a junior majoring in psychology with minors in criminal justice and family studies. She plans on pursuing graduate education in the area of clinical forensic psychology. A month after this interview, Janeen Stuthman graduated summa cum laude from the University of Nebraska at Kearney with a major in psychology and a minor in sociology. She is currently enrolled in the clinical psychology graduate program at Washburn University.

Stuthman: What childhood experiences have helped shape your career choice?

Bandura: I grew up in a small hamlet in Northern Alberta, Mundare, population 400. It had very limited resources. Grades one through high school were housed in one building with only two teachers teaching the entire high school curriculum. They tried hard but in many instances they lacked the full preparation in the subject matter. One time we pilfered the trigonometry answer book and brought the class to a halt. Here the life path was that you would work in the fields, come to town, played pool, and then you hit the sauce in the beer parlor. My parents presented me with a choice. I could either live that lifestyle or try to get an education. That seemed like the more attractive alternative.

The lack of financial and educational resources are often considered to be risk factors. However, they turned out to be enabling factors. We had to educate ourselves. I developed good self-management skills that have served me well throughout my career. I did my undergraduate work at the University of British Columbia, primarily in search of a more benign climate. My entry into psychology was by fortuity. I was com-

muting with a group of pre-meds and engineers. They had classes at ungodly early hours. I didn't know there was life that early. So I had filler time before my first class. I was in the library one day flipping through a course catalog that someone had left on the table. I saw this course in psychology, which would be excellent time filler. I took enrolled in it, was stimulated by it, and it became my career choice. Fortuitous influence figures as a factor in my theorizing. I try to bring a science to bear on the fortuitous character of life. Major life paths occur through the most trivial of circumstances. My selection of psychology as a major was a product of fortuity.

As a graduate student at Iowa, my friend and I were late getting to our golf start so we were bumped to a later time. There were two women ahead of us. They were slowing down as we were speeding up and before long we became a jovial foursome. I met my wife-to-be in the sand trap--another fortuitous event. When I delivered my presidential address at the Western Psychological Association, I centered it on the psychology of chance encounters and life paths. I documented how often marital partnerships, careers and other choices often occur through these trivial circumstances. The following year I received a call from one of the psychology editors. He explained that he seized a chair by the entrance to a ballroom as it was rapidly filling up. Next week he will be marrying the woman he happened to sit next to. In psychology we avoid chance like the plague. We are in the business of explaining, predicting and controlling human behavior. Fortuitous events are a nuisance. Since we cannot predict the occurrence of fortuitous events except in a very general way. If you hang out with the Hell's Angels you will have very different fortuitous experiences than if you hang around the university library. Most fortuitous events don't touch our lives. Some have some moderate influence and others may branch us into new life trajectories. In the talk at the Western Psychological Association, I presented a conceptual schema on how the interaction between personal attributes and characteristics of the environment determine the impact fortuitous events will have.

I have been a proponent of an agentic theory of human behavior. We have the capability to influence our life course by our actions. So we are partial contributors to our life circumstances not just products of them. The belief that we have some causative power is the foundation of human motivation, achievement, and well-being. Unless you believe that you can effect change by your actions, you have no incentive to act or to perse-

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vere in the face of difficulties. Whatever other factors may serve as guides and motivators, they are rooted in the core belief that we have the power to exercise some influence in the course our lives take. We can also exercise some influence on fortuity in two ways. We can make chance happen by going places, doing things, exposing different ideas. This creates opportunities to be exposed to all kinds of chance experiences. You can make chance work for you by developing your abilities, interests, and talents. This enables you to take advantage of fortuitous events when they arise. I often quote the ancient philosopher Seneca, who said, "Luck is when preparation meets opportunity." Pasteur added a twist on that by saying that "Chance favors only the prepared mind." The famous golf player Derek Player said, "the harder I work, the luckier I get." I often quote the distinguished lay philosopher Groucho Marx, "That you have to be at the right place at the right time and when it happens you better have something on the ball." So that's the short answer to the question what influenced my choice of career.

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

Bandura: When I took introduction to psychology, I was impressed with the scope of the field and the instructor. He wasn't a charismatic teacher, but he brought some profound perspectives on the nature of human life and the influences that shape it. So he's the one, where I was really taking the course as filler, and it turned out to be a course that shaped my career. That's when I decided that this might be an area in which I might want to major.

Stuthman: What was the reaction of your family, friends, and society to choosing psychology as a career?

Bandura: People were surprised because it was an uncommon choice. They felt a sense of pride that some-

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one from their small town was going to college. When I was in high school my parents encouraged me to go to Edmonton, which was the capital city with a population of 87,000 to get a broader perspective on life. I worked at a sash and door firm during the summer recess. At the University of British Columbia, to support myself I took a heavy workload in the morning and worked in a ladder company in the afternoon. The year before I completed my high school, I told my parents that there was this interesting job in the Yukon where you got your room and board and a very nice stipend. They didn't know where the Yukon was located or what I was getting into. It was a job on the Alaska Highway. The highway is built on muskeg, so the roadbed keeps sinking. They had to keep pouring gravel to maintain the road. I landed in White Horse and took a bus to the base camp and arrived there late at night. There was an ambulance and they were loading someone into the ambulance. I introduced myself and asked if someone was ill. They said no, it's our cook. He drank all the lemon extract for the alcohol, so they had to take him and pump out his stomach. I realized this is not going to be Mr. Roger's neighborhood. The camp was an interesting collection of characters. They were either escaping the draft board, creditors, irate ex-wives, and probation officers. They had some small jobs around the camp and delivering lunches to the workers. They gave me a pickup truck and told me to go to White Horse to get supplies. Booze seemed to be their main nutrient. I noticed they were getting large amounts of sugar to brew their own stuff. As the mash got more alcoholic, they would get up earlier to do testing. It was an unusual scene to see them be so mobile that early in the morning. On distillation day they left jubilantly. About a half an hour later they returned as the most depressed work force I've ever seen. The grizzly bears had consumed all their booze. We had eight drunken grizzly bears walking through the camp, staggering and falling over.

Nelson: Is there any particular reason you became interested in social psychology?

Bandura: My initial interest was in clinical psychology. When I was at UBC, I became fascinated with the theories of psychology, especially theories of learning. I was influenced by a few instructors there who were primarily interested in how that knowledge could be applied for human betterment. I started out my training in clinical psychology. At that time clinical psychology was very individualistically orientated. It placed the causes for the behavior and dysfunction within the individual. Dispositionists placed the causes of hu-

man behavior in the individual; situationalists placed the causes in the environment. I developed a broader model I called triadic reciprocal interaction. In this model, human functioning is a product of the interplay between personal influences, styles of behavior and environmental influences

Nelson: What made you decide to move from Canada to the United States?

Bandura: When I entered college in 1946, only a few universities in Canada offered doctoral degrees. The U.S. offered great choices for doctoral study. I went to my advisor and asked where "the stone tablets of psychology" were. He said at the University of Iowa. That was at the height of Hullian Theory and Kenneth Spence, a protégé of Hull, chaired the department at Iowa. When I graduated from Iowa I had every intention to return to Canada. The opportunities were limited. The Stanford University offer was irresistible. So I have just completed my 57th year at Stanford. I am now teaching offspring of my former students.

One of my honor students was Ricardo Munoz who is a leading researcher on community based prevention programs for depression. He came from an impoverished background in Venezuela. I was his honors advisor. He went to the doctoral program at Oregon. Thirty-five years later he asked if I would support him for his sabbatical leave. He asked whether he could sit in on my course that I had taught 35 years ago. He said his son, who is a senior at Stanford, was enrolled in the course. He then asked if his daughter, a freshman at Stanford, could sit in on the course. I said sure. His son came by and asked whether his girlfriend, could sit in on the course. Ricardo's son asked whether he could write his term paper on the congruence between his parents' child rearing practices, which his father claims are based on social cognition theory, and the basic tenet of the theory as presented in class

Stuthman: Do you work with undergraduate students?

Bandura: Yes, we have a policy at Stanford that every faculty member teaches both graduate and undergraduate courses. We have a large honors program, and Stanford encourages students to get involved in research and provides the faculty with the time to do that. We have remarkable, very bright, highly motivated students who are oriented to a professional career. We don't really make a big distinction between graduates, undergraduates, post-docs and so on. Undergraduates who are interested get deeply involved in our programs of research. Each faculty member has their lab in

their particular areas and the members of these teams include post-docs, graduates, and undergraduates. It's not unusual for them to have a number of publications before they graduate. Many of my publications are with undergraduate student co-authors.

Stuthman: In what ways have you had an impact on your own students, and in what ways have they had an impact on you?

Bandura: Social cognitive theory lends itself very readily to personal and social applications. This attracts students. I have a website that Frank Pajaros developed. It includes my biography, and all of my papers and chapters in electronic form. I receive a volume of emails from individuals who indicate that the work on modeling, self-efficacy, and self-management inspired and motivated them to make changes that bettered their lives.

Social cognitive theory lends itself very readily to personal and social applications. This attracts students.

In another program of research I am collaborating with my colleagues at the medical school to apply social learning theory to change our health field from a disease model to a health model. We need to keep people healthy, otherwise we are going to go bankrupt treating the maladies of unhealthful habits. There are five health habits that enable people to live longer, healthier and to reduce the rate of biological aging. Don't smoke, reduce the amount of dietary fat, live an active life, control blood pressures, reduce the risk of strokes and manage stressors to reduce wear and tear on the body. This new model of health care reduces habits that impair health and enhances those that promote health.

My fourth program of research centers on the exercise of moral agency and the mechanisms by which people disengage moral self-sanctions for detrimental conduct. It is designed to explain how otherwise considerate people can behave cruelly without loss of self-regard. I am overworked but it is self-inflicted through unbridled interest and social commitment to the use of our knowledge for human enlightenment and betterment.

Stuthman: What makes modeling therapy so effective?

Bandura: It shortcuts tedious trial and error by providing examples of effective styles of functioning. In the case of humans, we have a long period of immaturity. We can't afford to make costly errors. Modeling also builds interest and aspirations by showing that others similar to you can succeed through perseverance and effort. Through cognitive modeling one can build cognitive skills as well. In short, it is a highly effective vehicle for promoting cognitive, social, and motivational change. It does so at a societal level as well. Modeling has become increasingly important in this electronic era through global modeling. Attitudes and styles of behavior are being modeled worldwide. The power of modeling has been elevated to a new level for self-development, adaptation and change.

Nelson: In understanding human behavior, why do you believe it is important to integrate cognitions and behaviors?

Bandura: This question relates to the evolution of cognition and human nature. In ancient times human behavior was explained in terms of divine agency. Behavior was determined by divine design. Darwin argued that environmental pressures shape behavior, a process that is devoid of plans and purpose. Our textbooks tell us that nature provides limits, and nurture can do only so much. That is a very limited view of the power of nurture. Humans did not evolve morphologically to fly, but they are flying at fantastic speeds, even in outer space. We transcended our biology with inventive intellect. With the growing primacy of human agency in the co-evolution process, we are transforming environments, and creating new types of genomes. If Darwin was writing today he would be commenting on the overwhelming human domination of the environment.

Nelson: The Bobo Doll experiment is a very popular case in psychology. What inspired the Bobo Doll experiment? Looking back would you change anything about the experiment?

Bandura: The Bobo Doll experiment was an outgrowth of my interest in modeling. When I entered the field it was widely assumed that we learn only by direct experience, through rewarding and punishing consequences of our actions. I was puzzled by the disconnect between theory and everyday life where learning is through modeling, rather than solely through the tedious process of trial and error. Millard and Dollard had a theory of imitation, but it was merely mimicry. But you still had to perform responses and get rewarded for matching behavior. It did not capture the power of

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modeling through observational learning in which the observer learns new styles of behavior without performing any responses or getting rewarded or punished. We picked the Bobo Doll as the vehicle for studying acquisition of novel styles of behavior by observation alone. We weren't interested in whether the children would punch it because that is what you do with a Bobo doll. Rather, we modeled novel forms of aggressive behavior, such as pummeling it with a mallet accompanied by verbal neologisms like "wetosmacko." This enabled us to study the basic mechanisms of observational learning. This experiment is widely misunderstood. It was designed to study learning of a novel style of aggression. For this purpose one uses a simulated target. To use a human target to assess level of learning would be as nonsensical as to require bombardiers to bomb San Francisco or New York to test for acquisition of bombing skills.

Although the experiments were conducted about 45 years ago, the Bobo doll follows me wherever I go.

Although the experiments were conducted about 45 years ago, the Bobo doll follows me wherever I go. Virtually every undergraduate student takes introduction to psychology and they see the Bobo doll photos and film clips of the experiment. Last year I was checking into a Washington hotel, the clerk looked at the registration form and said, "Bandura, you're the guy that did the Bobo Doll experiment." I said, "I'm afraid that's going to be my legacy." He said, "Hell, that deserves an upgrade, I'll give you a suite in a quiet part of the hotel!" Last month I was checking through customs in Vancouver, the customs agent looked at my passport and asked me, "Aren't you the one that did the Bobo doll experiment?" She was a psych major from UBC. I get them for autographing, I usually autograph, "All power to the Bobo dolls." Recently I received an e-mail from a group of graduate students whose instructor is an avid promoter of social cognitive theory. They asked me to send her a note for her birthday? I sent her a note, but I did not receive a reply. I contacted the graduate student, and she said, "Oh, we've been sending her fake autographed pictures and articles, she just figured this was another prank." When they reassured her it was a true, she called. She explained that they had been playing jokes on her. They had recently kid-

napped her Bobo doll with a ransom note that she should quit her class on time and bring chocolate chip cookies on Friday. She met the ransom demands, and one of the students rushed up to place the Bobo doll by her door. She fell on the stairs and broke the Bobo doll. The class went into mourning.

Stuthman: How did you separate the idea of self-efficacy from self-concept?

Bandura: Self-concept is a global construct that includes a variety of things—one's sense of identity, general self-view, self-worth, etc. It is hard to know what produces what and how in a mixed construct. Self-efficacy is belief in one's capabilities. It too was an outgrowth of serendipity. We were conducting research on a guided master treatment founded on the principle that in order to change refractory behavior people have to confront the problems they face, and be enabled to overcome them. People are not going to do what they dread. Guided modeling provided a quick way of restoring reality testing. We were treating phobias. People continue to maintain their phobias because they shun the reality that could provide corrective experiences. There are two ways in which guided modeling restores reality testing. It demonstrates that what phobics fear does not happen. Even more important it enables them to develop the capabilities for exercising better control. We began with snake phobics. Because they aren't going to do what they dread, we developed a set of mastery aids that would enable them to succeed despite themselves. We modeled how to exercise control and demonstrated what they fear doesn't happen. Severe phobics watched through a one-way mirror, because they could not even enter the room.

The next aid was graduated tasks. We would never ask them to do anything they couldn't without some help. This would get them to an open door with a caged snake in the room. Gradually they got closer and closer. If they still couldn't go in the room we would do it together. They won't do it alone, but sometimes they will do it with the security of a therapist. In a short time, they would be at the cage and through modeling, graduated tasks and other mastery aids they overcame their phobias in three or four hours. They had been plagued with this phobia for 20 to 30 years. It impaired their lives. They had been plagued with nightmares with reptiles pursuing them. Overcoming this phobia in such a short time was a transforming experience. They developed a new mindset. If I can get rid of my phobia in such a short time, what about other aspects of my life?

In a follow up to see how well they were doing, they reported being very appreciative of having been rid of the phobia. They explained that the treatment had a more profound effect on their lives. It restored a sense of efficacy. They were acting on that belief and succeeding much to their surprise. I decided to change my program of research to try to understand the nature of this belief system, how it develops, through which mechanisms does it work, and whether one can use this knowledge for personal and social betterment. This is another example of serendipity. I set out to develop a powerful mode of therapy and redirected my program of research to develop and test a theory of self-efficacy. I was surprised by how quickly the theory was adopted in various fields of education, health, clinical practice related to phobias, anxiety, depression, eating disorders, substance abuse, in athletics, in organization functioning, and in personal and social change.

When I began work on the self-efficacy book, I thought it would be a modest monograph. With rapidly growing publications from these diverse sources, it began to grow. My publisher wanted to put the book into production. However, every week new studies were being published so I did not want to submit it. The manuscript had grown to over 1,000 pages. So we came to an agreement, I would submit the manuscript, but I could continue to submit inserts until the copy editor completed the copyediting. Fortunately, the copy editor was delayed in getting to it. Each day I was submitting excerpts. They quickly got the copy editor to get to it to ward off the flow of inserts.

Nelson: What challenges did you face as chair of the department?

Bandura: I chaired the department when we did not have the huge number of rules and regulations that we have now. When I joined the department there were only 12 members, and when I chaired the department there were only about 25. The ethos of the department was to share the responsibility of running the department. It was not a top down job. There was no vying for power or completing cliques. It was a department of busy faculty deeply immersed in their scholarship. At one point the Dean summoned Gordon Bower, Bob Michel and myself to his office and explained that he did not care in which order we did it, but he wanted 9 years out of the three of us. There weren't the challenges that we have now. There are now a lot more rules and regulations regarding research grants and student affairs requiring an expanded administrative staff. We are installing a neuroim-

aging system in the basement of our building, which is a huge and expensive operation. The volume of research in the field has increased with countless new journals, and greater specialization as the field grows more complex. At Stanford I was blessed with illustrious faculty, gifted students, and a university ethos that approaches scholarship not as a matter of publish or perish, but with puzzlement that the pursuit of knowledge should require coercion.

Stuthman: You are a very successful person, what were some of the obstacles you had to face throughout your life and how were you able to overcome them?

Bandura: I think the obstacles were mainly in my early life and that was simply the limitation of resources. You didn't have plentiful models of academics around. But as I point out, those turned out not to be obstacles, but a set of experiences. My parents had no formal education, but they had a tremendous value for education as a way of mobility. So, that was a support system. Especially the way in which they presented the options to me shaped my direction. So, there was the difficulty of a lack of resources, but then it depends on how you respond to that. Do you develop a sense of futility? I don't have any resources I can't do it? Fortunately, because of my family influences I took that as a challenge, rather than an impediment. That took a form of developing a capacity for self-regulation, self-directed learning and so on. I took it upon myself. Those lack of resources are

Those lack of resources are probably considered risk factors, but in my case they turned out to be enabling factors.

probably considered risk factors, but in my case they turned out to be enabling factors. When I started in college, I got a lot of support from faculty. I had the benefit of getting my first academic job in a setting that was ideally suited for promoting scholarship. At Stanford we have the ethos in which the university looks at scholarship not as publish or perish, but with the puzzlement of why would you have to coerce someone to create knowledge, and they gave us the time to do that. Most of us teach one course a quarter, so we have a light teaching loads. That allows us a lot of opportunity to be creators of knowledge, not just providers of knowledge to students.

There isn't any big distinction between teaching and research because most of my courses draw heavily on the research I'm doing. So the students get it before it appears 5 or 10 years later, it gives them advanced exposure to it.

Nelson: What would you say your most significant accomplishment was as President of the APA?

Bandura: We were going through a tough time. This was a period when there was growing fear that the new movement in behavior modification and the behavior modifiers were going to shape and control human behavior. Skinner didn't help with his book "Beyond Freedom and Dignity." The public read it as if they were going to take away people's freedom and undermine their dignity. That was the main treatment of psychology in the press. Clockwork orange came out showing behavior modifiers shocking people into health. Woody Allen came out with "Sleeper" in which automata rebelled against controllers. In Skinner's book "Beyond freedom and dignity" the image of psychology was primarily one of threat, that we would be exercising control on a large scale. There were some publicized cases in which behavior therapy, particularly in institutional settings, was being applied in coercive ways. My main effort in the APA was to respond proactively rather than just reactively. I put together a

My main effort in the APA was to respond proactively rather than just reactively...I felt we should be playing a more active role in a positive way.

committee to study the ethics of how our knowledge was used. It was a multidisciplinary committee that visited institutions and schools to observe the behavioral practices. We published a book on the ethics of behavior modification that provided a set of ethical principles. There was a broader issue. I felt we should be playing a more active role in a positive way. I insisted at every board meeting that the staff prepare white papers on issues that involve public policies that we should be addressing proactively, so we were playing a much more active role in that regard. We had psychologists on internships on the staffs of senators and congressmen. They helped in the shaping of laws that had important social implications. My presidency addressed broader issues of

our public image and the need to assume responsibility for the way in which our knowledge is being used. At the same time there was a festering and growing problem of fights between clinicians and academic factions. I presided over the effort to find a way to keep the APA together. We set up a commission to study restructuring of the APA into a federation in which major interest groups could pursue their own particular interest with a board to deal with common issues and public policies. This federated structure included an academic group, an applied group and a public policy group. They could set up their own agenda and levy their own fees. Then there would be the overriding board. We tried it for a few years, but several years later the groups split. One group remained with the APA, the other faction created the American Psychological Society (APS).

As a way of influencing public policy we also developed an advocacy organization that enabled us to influence legislative initiatives. We had resisted that before because it would jeopardize our tax status. We set it up independent of, but closely allied with it. Our first fight was with psychiatry. We had an agreement with psychiatry that they would not intrude on our turf legislatively and we would not intrude on theirs. One day I received a call from the president of the American Psychiatric Association explaining that the budget for the Champus program, which provided psychological services to veterans and their families, was being cut back by the Defense Department. The President of the American Psychiatric Association explained that they were asked to form a committee to create guidelines for use of this program, and would I like to add a psychologist to the committee? I explained to him I was surprised by his "generosity" considering we were coequals in this program. I called our lobbyist who happened to be a fishing buddy of the congressman overseeing the program in the House of Representatives. We provided him information on why psychology should play a major role in this program. Psychiatrists are mainly located in large urban areas like New York, San Francisco, LA, Boston, and Chicago. Whereas many of the dependents and veterans live in smaller communities where psychologists are available to provide services to families. Secondly, we explained that most of the new developments in psychotherapy were in the field of psychology. And third we cost about a third less. The congressman said, "Hell, why don't you guys set it up?" We had a fight with psychiatry that we won and then they left us alone. Over time we gained high respect in congress that enabled us to influence legislative initiatives that benefitted the public.

Stuthman: Of all the awards you received, which do you cherish the most?

Bandura: I don't take awards too seriously. I view awards more in terms of recognition of the theoretical approach that I've taken to psychology and its applications rather than just a personal achievement.

Nelson: We read that you enjoy traveling, what is your favorite location you have traveled

Bandura: Italy. Nice lifestyle, great cuisine, fantastic art treasures and magnificent opera productions. I am collaborating with Professor Caprara at the University of Rome on a longitudinal project reconstructing child development from an agentic perspective.

Stuthman: I also read that you enjoy hiking, where is your favorite location to go hiking? What do you enjoy most about hiking.

Bandura: The High Sierras. It's great to get out into the majestic High Sierras in California. There is nothing like being amidst these majestic peaks to put petty concerns into cosmic perspective. It is a great place to commune with the muse. But that's all been changed. I was hiking recently and found many of the hikers on their cell phones. They could not shed their electronic leash. It intrudes on family life, social life, recreational life and public life. This creates a tougher problem on how to maintain a balance in the priorities of life.

Invitation to Contribute to the Special Features Section—I

Undergraduate students are invited to work in pairs and contribute to the Special Features section of the next issues of the *Journal of Psychological Inquiry*. The topic is:

Evaluating Controversial Issues

This topic gives two students an opportunity to 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 should take one side of the issue and address current empirical research. Each manuscript should make a persuasive case for one side of the argument.

Submit 3-5 page manuscripts. If accepted, the manuscripts will be published in tandem in the *Journal*.

Note to Faculty:

This task would work especially well in courses that instructors have students debate controversial issues. Faculty are in an ideal position to identify quality manuscripts on each side of the issue and to encourage students to submit their manuscripts.

Procedures:

1. All manuscripts should be formatted in accordance with the APA manual (latest edition).
2. Include a sponsoring statement from a faculty supervisor. (Supervisor: Read and critique papers on content, method, APA style, grammar, and overall presentation). The sponsoring statement should indicate that the supervisor has read and critiqued the manuscript and that writing of the essay represents primarily the work of the undergraduate student.
3. Submit your manuscripts online (<http://www.edmgr.com/jpi>) as a Special Features: Controversial Issues submission.

Invitation to Contribute to the Special Features Section—II

Undergraduate students are invited to contribute to the Special Features section of the next issue of the *Journal of Psychological Inquiry*. The topic is:

Conducting Psychological Analyses – Dramatic

Submit a 3-5 page manuscript that contains a psychological analysis of a television program or movie.

Option 1—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. Citing references is optional.

Option 2—Movie Analysis:

Analyze a feature film, available at a local video store, for its psychological content. Discuss the major themes but try to concentrate on applying some of the more obscure psychological terms, theories, or concepts. For example, the film *Guess Who's Coming to Dinner?* deals with prejudice and stereotypes, but less obviously, there is material related to attribution theory, person perception, attitude change, impression formation, and nonverbal communication. 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. Citing references is optional.

Procedures:

1. All manuscripts should be formatted in accordance with the APA manual (latest edition).
2. Include a sponsoring statement from a faculty supervisor. (Supervisor: Read and critique papers on content, method, APA style, grammar, and overall presentation). The sponsoring statement should indicate that the supervisor has read and critiqued the manuscript and that writing of the essay represents primarily the work of the undergraduate student.
3. Submit your manuscripts online (<http://www.edmgr.com/jpi>) as a Special Features: Conducting Psychological Analyses – Dramatic submission.

Invitation to Contribute to the Special Features Section—III

Undergraduate students are invited to contribute to the Special Features section of the next issue of the *Journal of Psychological Inquiry*. The topic is:

Conducting Psychological Analyses – Current Events

Submit a 3-5 page manuscript that contains a psychological analysis of a current event. News stories may be analyzed from the perspective of any content area in psychology. The manuscript should describe the particular event and use psychological principles to explain people's reactions to that 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 as 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 this terrorist act.

The analysis of a news event should include citations of specific studies and be linked to aspects of the news story. Authors could choose to apply several psychological concepts to a single event or to use one psychological theory or concept to explain different aspects associated with the event.

Procedures:

1. All manuscripts should be formatted in accordance with the APA manual (latest edition).
2. Include a sponsoring statement from a faculty supervisor. (Supervisor: Read and critique papers on content, method, APA style, grammar, and overall presentation). The sponsoring statement should indicate that the supervisor has read and critiqued the manuscript and that writing of the essay represents primarily the work of the undergraduate student.
3. Submit your manuscripts online (<http://www.edmgr.com/jpi>) as a Special Features: Conducting Psychological Analyses – Current Events submission.