In recent years, microaggressions, forms of discrimination where the intent is ambiguous in nature, have started to gather more attention in the psychological community. Slights about race, gender, sexual orientation, or other minority status have started to shift from blatant forms of discrimination into small, mosquito bite-like offenses. One or two bites are not so problematic, but sustain a few bites every day for the rest of your life, and you might have a problem. This is where my mind went as I started to delve into research about microaggressions.

The psychological community, although very divided about how to define microaggressions, is aware of the existence of these experiences. Participants in many different studies have discussed their experiences with microaggressions, but little has been done to see how individuals are impacted by these statements or how these “bites” affect an individual long term (emotionally or cognitively, for example). This is what I set out to do. The purpose of this project was to provide quantitative data regarding the impact of these microaggressive experiences.

As I participated in this project, I learned how to overcome the challenges of the research process. Trying to prepare a way to measure something quantitatively when only qualitative data had been conducted was extremely challenging. I really had to get creative to figure out how to measure the cognitive impact of these experiences. Luckily, I happened across an automated task I could use in the lab. Several issues arose as I started collecting data, and I really had to brainstorm how to ensure we did not lose any of that data we had collected. Additionally, while I did not have significant findings, I am motivated to continue this research and make adjustments in hopes of honing in on future methodologies to help provide answers to an area of psychology not quite understood. Most importantly, I appreciated the gratification and accomplishment I felt upon finishing a thesis I worked to develop for over a year.
Cognitive Effects of Gender Microaggression on Women

Microaggression, a new form of discrimination, has emerged in recent years (see Sue et al., 2007 for review). Researchers have been studying microaggressions and their effects on racial minorities (Williams, 1999, Rivera, Forquer & Rangel, 2010; Sue et al., 2007; Sue et al., 2008), sexual minorities (Nadal et al., 2011; Nadal, Rivera & Corpus, 2010), and those with disabilities (Keller & Galgay, 2010). However, little research has been done regarding the effects of gendered microaggressions toward women. This gap in the literature needs to be addressed due to the parallels drawn between women and other minority groups regarding subtle discrimination (Nadal, 2010; Swim et al., 2001).

Gendered microaggressions are defined as “brief and commonplace daily verbal, behavioral, and environmental indignities that communicate hostile, derogatory, or negative sexist slights and insults towards women” (Nadal, Hamit, Lyons, Weinburg, & Corman 2013, p. 193). While microaggressions become more prevalent throughout society, sexism is also still common and explored (Benokraitis & Feagin, 1995; Swim, Aikin, Hall, & Hunter, 1995; Swim, Mallett, Russo-Devosa, & Stangor, 2005). Various forms of sexism have been reported including overt and covert sexism, subtle sexism (Swim & Cohen, 1997; Swim et al., 2005), and everyday sexism (Swim, Hyers, Cohen, & Ferguson, 2001).

Sexism and Microaggressions

Overt sexism refers to deliberate and obvious displays of sexism toward women where women are treated unfairly in comparison to men. A man saying he could not give a woman a job due to her gender is a direct representation of overt sexism. Covert sexism is a less obvious form of discrimination. An example of covert sexism would be a man who claims to not recognize differences in gender, but still would not vote to elect a female president. Subtle
sexism often is the hardest to detect because it is accepted as the social norm (Swim, Mallett, & Stagner; 2004, p. 117). An example of subtle sexism would be assuming a person in a position of power or authority (e.g., professor) was a “he” without knowing the individual’s true gender. Subtle sexism is different from covert and overt sexism in that it typically is not meant to cause harm to the recipient and is completely unintentional (Sue, Capodilupo, & Holder, 2008). Everyday sexism is often the prejudices and discriminatory stereotypes that women experience in their daily lives. An example could be the hostile language used towards women (e.g., bitch, slut, or chick), but also the stereotype that women should fold laundry or prepare food (Swim et al., 2001).

Microaggressions are different from other forms of sexism in that they occur in various categories. Microaggressions have been classified into three main categories: microassaults, microinsults, and microinvalidations (Basford, Offermann, & Behrend, 2014). Microassault refers to older blatant forms of discrimination. Microinsults are more subtle forms of discrimination, typically unnoticed by the perpetrator, but revealing of some hidden opinions or beliefs about a minority individual. “I believe the most qualified person should get the job, regardless of gender” is an example of a microinsult. Microinvalidations dismiss the thoughts, actions, and experience of individuals. “I don’t see gender” is an example of a microinvalidation. Microaggressions are both covert in nature (Nadal, 2010). Research has revealed several themes regarding gendered microaggression: sexual objectification, second-class citizenship/invisibility, assumption of inferiority, denial of reality of sexism, assumption of traditional gender roles, denial of individual sexism, use of sexist language, and environmental microaggressions (Nadal, 2010; Sue & Capodilupo, 2008).

Assessing Impact of Microaggression
To assess the impact of microaggressions on target group members, researchers have used self-report interviews and first-hand accounts (Nadal, Hamit, Lyons, Weinberg, & Corman, 2013). Individuals often reported they were unsure of the intentionality of the microaggressive statements and also uncertainty with how to respond (Sue, 2010). Individuals who have been exposed to racial microaggressions report an increase in mistrust and loss of self-esteem (Spanierman & Heppner, 2004; Thompson & Neville, 1999). Blatant forms of discrimination have been shown to create additional stress, depression, shame, and anger (Jones, 1997). Another study found positive associations between the effects of perceived discrimination, often what is experienced with microaggressions of all forms, and major depression, generalized anxiety disorder, early initiation of substance abuse, and anger (Williams, Neighbors, & Jackson, 2003). Research revealed that individuals who experience racial microaggressions often experience a negative racial climate, self-doubt, frustration, and isolation (Solorzano, Ceja, & Yosso, 2000).

Experiencing microaggression is associated with negative outcomes within clinical practice, education, and other settings (Nadal, 2010). Although targets of microaggressions experienced negative physical and health outcomes, it is currently unknown whether microaggressions result in negative cognitive effects. However, the stereotype literature suggests that experiencing subtle forms of discrimination might affect the target’s working memory capacity (WMC). Dardenne, Dumont, and Bollier (2007) found that women performed worse on working memory tasks when exposed to benevolent sexism compared to blatant sexism. They defined benevolent sexism as “a more positive attitude (often paternalistic, but not necessarily) toward women that appears favorable but is actually sexist because it portrays women as warm but incompetent or weak individuals in need of men’s protection and support” (Dardenne, Dumont, & Bollier, 2007, p. 764). Parallels can be drawn between the intended positive nature of
benevolent sexism and the ambiguous intent of microaggressive statements. The victim of a microaggression must spend cognitive resources attempting to understand the intentionality of the statement, and this may also occur with benevolent sexism.

Aside from the psychological and emotional effects of microaggressions on recipients, microaggressions may influence racial interactions as well as social and institutional policies. Perpetrators of microaggression often do not understand the impact of their statements (Sue et al., 2008). Studies have also shown that women who are exposed to higher prevalence of sexual harassment in the workplace report lower job satisfaction, physical health, depression, and anxiety (Fitzgerald et al., 1997). This relates strongly to the findings of Sue et al. (2008) regarding racial microaggression. This suggests that individuals who experience gender microaggression may have similar effects.

Racial minorities were found to be more susceptible to ambiguous discrimination, suggesting that they cope better when exposed to overt discrimination (Salvatore & Shelton, 2007). This susceptibility to ambiguous discrimination may arise from the additional resources used when trying to determine if someone was being intentionally discriminatory or had good intentions. If this is true, more of an individual's central executive, or working memory, is utilized leaving less room for mental processing using the phonological loop, visio-spatial sketchpad, or the episodic buffer. This limited processing could result in diminished working memory.

Previous literature has examined cognitive effects of stereotype threat on various minority groups. Stereotype threat occurs when an individual's performance on a task is diminished when a stereotype about one of their marginalized identities is emphasized. One study found that stereotype threat diminished working memory performance in a gender
condition and also a racial condition, but found that working memory capacity mediated stereotype threat (Schmader & Johns, 2003). In the study, researchers found individuals who were exposed to greater amounts of stereotype threat had a reduced working memory capacity on various tests. Microaggression is similar to stereotype threat, in that stereotype threat influences an individual’s performance based on stereotypes regarding their identity. Microaggression may use up cognitive resources similarly, but the individual is not concerned about stereotypes regarding their group identity, but whether or not a statement should be interpreted as discriminatory (Swim, Scott, Sechrist, Campbell, & Stangor, 2003; Basford, Offermann, & Behrend, 2014).

Working memory is utilized in everyday activities involving attention and uses verbal and visuo-spatial components in the temporary recall of information (Baddeley, 2000). Working memory can be evaluated using various tasks. Daneman and Carpenter (1980) developed a sentence span task that is widely used for evaluating working memory. Working memory is an essential part of functioning throughout life. In childhood, decreased working memory was directly related to diminished national test performance (Gathercole & Pickering 2000). Working memory capacity is also associated with general fluid intelligence (Engle & Kane 2004).

**Present Research**

The purpose of the present study was to investigate recalled gender microaggressions and their effects on women’s working memory. Research in stereotype threat has shown that when individuals can confirm the stereotype of their minority group their working memory capacity decreases (Schmader & Johns, 2003). The present study examined working memory capacity after women reflect on a personal experience related to gender microaggression. Using a between-subjects design, Participants were randomly assigned to one of three conditions: To
reflect on gender microaggression, to reflect on a neutral experience unrelated to gender, and to reflect on a blatant sexism experience. The dependent variables were working memory performance, measured by a reading span task which scored both partial span and absolute span.

In the present study, participants were asked to recall instances of microaggression, blatant discrimination, and a neutral experience. This methodology was utilized to avoid the ethical dilemmas of exposing individuals to instances of discrimination (both blatant and microaggression) as well as to mimic methodologies utilized in prior research. Ackerman and colleagues (2009) found that vivid recreations of social identity threat would instigate similar feelings as an actual instance of identity threat. Inzlicht and Kang (2010) utilized a similar method asking participants to recall an instance of prejudice to simulate psychological effects similar to an actually instance of prejudice and make a decision regarding a lottery. Researchers found that when individuals recalled an instance of social identity threat participant's effective decision making was diminished and more participants made a more risky choice than those in the control group. In an additional study, researchers found women who were not provided with an effective coping strategy perform worse when exposed to stereotype threat (Schmader & Johns, 2003).

I hypothesized that:

1. Women in the gender microaggression condition will score lower on the reading span test than women in the other two conditions.

2. Women in the blatant discrimination condition will score lower on the reading span test than those in the neutral condition.

3. For women in the gender microaggression condition, there will be a negative correlation between their ratings of detail and vividness of the recollection of their
experiences with their score on the reading span task.

Method

Participants

Participants consisted of 60 female Ball State Students ($M=19.33; SD=1.26$). The racial/ethnic breakdown of the sample was Caucasian (68.3%), Black (16.7%), Multiracial (8.3%), Asian (5.0%) and Hispanic (1.7%). The class standing breakdown of the sample was freshman (50.0%), sophomore (25.0%), junior (23.3%), and senior (1.7%). The sexual orientation breakdown of participants was heterosexual (95.0%), homosexual (3.3%), and bisexual (1.7%). Participants were recruited using the psychological science and marketing research pools; these participants received one research credit for completing in the study.

Materials

Recall task. Three different versions of instructions were created for each condition of working memory assessment. In condition one, participants were asked to recall an instance of blatant discrimination. Participants in this condition received this instruction change: “We’d like you to think back and try to recall an incident in which an individual made a comment related to your gender with the intent to discriminate and it offended you.”. In condition two, participants recalled an instance of microaggression. Participants in this condition received this instruction change: “We’d like you to think back and try to recall an incident in which an individual made a comment related to your gender that was ambiguous in terms of intent. In other words, the comment could be taken as offensive but you weren’t sure.”. In condition three, participants recalled a neutral experience, specifically related to their first day on campus. Participants in this condition received this instruction change: We’d like you to think back on your very first day on
campus and try to remember everything you can about that day. See Appendix B for the complete presentation of recall instructions for each condition.

**Demographic information.** Basic demographic information, including gender, participant age, class standing, race/ethnicity and sexual identity was collected. Participant age was exclusion/inclusion criteria, as those under 18 were not able to participate (see Appendix).

**Recall and assessment of experience.** Participants were then asked to write for ten minutes recalling in detail an experience as instructed by one of the three conditions. Participants were asked to complete the PANAS scale (see Appendix B). The PANAS assessed the mood of the participant after recalling their experience (Watson, Clark, & Tellegen, 1988).

**Working memory task.** Participants then completed an automated reading span task developed from Unsworth, Heitz, Schrock, & Engle (2005). This task assessed the participants’ working span capacity by having them remember letters while simultaneously checking to ensure sentences made sense as a distractor.

**Procedure**

Participants first read the informed consent. Then, participants provided demographic information. Upon completing the demographic survey, participants were randomly assigned to one of the three conditions and instructed to write about their experience. Participants were given two minutes to read the instructions and asked to write for ten minutes. After writing for ten minutes, participants completed the Positive and Negative Affect Scale (PANAS), then answered questions regarding clarity and vividness of their experience. After rating their experience they were asked to complete the automated reading span task developed from Unsworth, Heitz, Schrock, & Engle (2005). For the working memory task, participants were required to read sentences while trying to recall a sequence of unrelated letters (B, F, H, J, L, M, Q, R, and X).
Participants were presented with sentences and asked to determine if they made sense or not (e.g., "The prosecutor's dish was lost because it was not based on fact."). Half of the sentences were written properly, and half of the sentences had some type of error that made them nonsensical. Sentences intended to not make sense had a single word change (e.g., "dish" from "case") from a sentence that would otherwise be written properly. There were 10–15 words in each sentence. Participants determined whether or not sentences made sense by clicking either "correct" or "incorrect". Trial length varied as the participant moved through the test, the first trial contained two sentences and two letters and the final trial contained seven sentences and seven words. After each trial, participants attempt to place the letters in the proper order that they were presented by clicking boxes that corresponded to all letters utilized in the test. Participants attempted to place letters in order ranging from two to seven letters. After all measures are completed, they were debriefed.

Results

Preliminary

All data was cleaned using by analyzing accuracy of performance on the reading span task. Any scores below 85% accurate were removed from the file. Two participants scored below 85% leaving 58 total participants. Due to an error with the task, fourteen participants' scores were extrapolated from fourteen trials by dividing the total number of trials (15) with the number of trials recorded (14) and multiplying that by their manually calculated scores.

Hypothesis Tests

The purpose of this study was to examine if recollection of microaggression or blatant discrimination had a greater impact on working memory than a neutral stimulus.

The three main hypotheses were:
1. Women in the gender microaggression condition will score lower on the reading span test than women in the other two conditions.

2. Women in the blatant discrimination condition will score lower on the reading span test than those in the neutral condition.

3. For women in the gender microaggression condition, there will be a negative correlation between their ratings of detail and vividness of the recollection of their experiences with their score on the reading span task.

To test the effect of condition (microaggression, blatant discrimination, or neutral) on working memory, partial reading span scores were analyzed using a series of independent samples t-test. The results are presented in Table 1. Partial reading span scores for participants recalling blatant discrimination ($M = 53.05$) did not differ significantly from the reading span scores for participants recalling an instance of microaggression ($M = 52.8$), $t(37) = .075, p = .941, Cohen's d = .028$. Partial reading span scores for participants recalling microaggression ($M = 52.8$) did not differ significantly from the neutral condition ($M = 53.63$), $t(37) = -.212, p = .387, Cohen's d = -.065$. Partial reading span scores for participants recalling blatant discrimination ($M = 53.05$) did not differ significantly from the partial reading span scores of participants in the neutral condition ($M = 53.63$), $t(37) = -.151, p = .358, Cohen's d = -.042$. Hypothesis 1 was not supported.
Table 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>Blatant Discrimination</th>
<th>Microaggression</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>19</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>Partial RSPAN</td>
<td>53.05 (9.94)</td>
<td>52.8 (11.03)</td>
<td>53.63 (13.40)</td>
</tr>
<tr>
<td>Absolute RSPAN</td>
<td>33.58 (11.01)</td>
<td>32.35 (12.60)</td>
<td>35.45 (18.41)</td>
</tr>
<tr>
<td>Vividness</td>
<td>4.63 (1.34)</td>
<td>4.9 (1.02)</td>
<td>4.84 (1.12)</td>
</tr>
<tr>
<td>Detail</td>
<td>4.05 (1.31)</td>
<td>4.35 (1.09)</td>
<td>4.68 (1.38)</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>25.26 (9.94)</td>
<td>23.7 (8.39)</td>
<td>26.21 (8.52)</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>15.21 (4.93)</td>
<td>14.6 (4.27)</td>
<td>14.42 (3.75)</td>
</tr>
</tbody>
</table>


To test the effect of condition (microaggression, blatant discrimination, or neutral) on working memory, absolute reading span scores were analyzed using a series of independent samples t-test. The results are presented in Table 1. Absolute reading span scores for participants recalling blatant discrimination \((M = 33.58)\) did not differ significantly from the absolute reading span scores for participants recalling an instance of microaggression \((M = 32.35)\), \(t(37) = .324, p = .851\), Cohen’s \(d = .104\). Absolute reading span scores for participants recalling microaggression \((M = 32.35)\) did not differ significantly from the neutral condition \((M = 35.42)\), \(t(37) = -.611, p = .165\), Cohen’s \(d = 0.195\). Absolute reading span scores for participants recalling blatant discrimination \((M = 33.58)\) did not differ significantly from the absolute reading span scores of participants in the neutral condition \((M = 35.42)\), \(t(36) = -.374, p = .105\), Cohen’s \(d = 0.121\). Hypothesis 2 was not supported.

The third hypothesis stated there would be a negative correlation between detail and vividness and reading span scores in the microaggression condition. This hypothesis was not supported. There was a positive correlation between vividness and partial reading span, \(r = 0.578, N = 20, p < .01\). Additionally, there also was a positive correlation between vividness and absolute reading span \(r = 0.596, N = 20, p < .01\). Positive correlations were noted between detail and partial reading span \(r = 0.448, N = 20, p < .05\). Positive correlations occurred between detail
and absolute reading span $r = 0.477, N = 20, p < .05$. Additional correlational data is presented in Table 2.

Table 2

<table>
<thead>
<tr>
<th>Condition</th>
<th>Partial RSPAN</th>
<th>Absolute RSPAN</th>
<th>Vividness</th>
<th>Detail</th>
<th>Positive Affect</th>
<th>Negative Affect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blatant Discrimination</td>
<td>Vividness 0.11</td>
<td>-0.04</td>
<td>1</td>
<td>0.86**</td>
<td>0.08</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>Detail 0.03</td>
<td>0.03</td>
<td>0.86**</td>
<td>1.11</td>
<td>0.33</td>
<td></td>
</tr>
<tr>
<td>Microaggression</td>
<td>Vividness 0.58**</td>
<td>0.60**</td>
<td>0.65**</td>
<td>1.14</td>
<td>0.39</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Detail 0.45*</td>
<td>0.48*</td>
<td>0.65**</td>
<td>0.25</td>
<td>0.54*</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td>Vividness 0.46*</td>
<td>0.42</td>
<td>1</td>
<td>0.65**</td>
<td>0.13</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>Detail 0.48*</td>
<td>0.48*</td>
<td>0.65**</td>
<td>0.28</td>
<td>0.05</td>
<td></td>
</tr>
</tbody>
</table>

Notes. ** $p < 0.01$ level (2-tailed). * $p < 0.05$ level (2-tailed).

Exploratory

Positive affect did not vary as a function of condition, $F(2,55) = .391, p > .10$. Negative affect did not vary as a function of condition, $F(2,55) = .179, p > .10$. Vividness did not vary as a function of condition, $F(2,55) = .283, p > .10$. Detail did not vary as a function of condition, $F(2,55) = 1.191, p > .10$.

Discussion

Prior research has demonstrated the increasing prevalence of microaggression in our society (Sue et. al., 2007). Previous research has used self-report and interviews to examine the prevalence of microaggression and the ambiguous nature of the statements these individuals experience (Sue, 2010). However, little research has been done to examine the effects of microaggression outside of self-report measures.

The purpose of this research was to examine the cognitive impact women experienced after recalling microaggression, blatant discrimination, or a neutral stimuli. No study has attempted to examine microaggression in this manner. However, Dardenne, Dumont, and Bollier
(2007) found that women who experienced benevolent sexism, a comparable concept to microaggression, performed worse than individuals exposed to blatant sexism. In this study, we attempted to recreate those findings using definitions of microaggression.

In general, while small differences in the means did occur in the direction of the hypotheses, no significant differences were found for both partial reading span score and absolute reading span score. However, significant positive correlations were found between level of detail in the recollection and reading span scores in both the neutral and microaggression condition. This could mean that while individuals recognized what individuals in the microaggression condition said or did was discriminatory, it may have been unintentional and thus individuals categorized this memory as they would a neutral memory. A significant correlation was not found between vividness of recall and reading span scores in the blatant discrimination condition. This could be due to the obvious negative intent of what women experienced and how they categorized this memory.

Problems and Limitations

After reviewing the recalled memories participants provided it was apparent that the difference between gender microaggressions and blatant discrimination that occurred as result of one’s gender may not have been clarified strongly enough in the instructions each individual received. This also could be a lack of a knowledge about terms used to describe microaggression including ambiguous intent. The small sample size may have skewed the results. More participants may have resulted in stronger differences between the three conditions.

It is also important to explore the impact the reframing may have had on how many of the participants in this study conceptualized their experiences of blatant discrimination and microaggression. Many of the women ended the recall portion of the study by saying the event
they experienced did not bother them or that they were determined to prove the individual who made the comment wrong. If individuals had focused on the details of their experience and not used cognitive resources attempting to reframe the experience, they may have been affected more strongly by the statements.

Finally, this study did not take into account the variability between individual definitions of both microaggression and blatant sexism. While we provided what many would consider the definition of each of these terms in the instructions, individuals may have interpreted discrimination differently based on how they were raised or what they conceptualize as discrimination, whether blatant or microaggressive.

**Future Research**

For future research, it could be interesting to explore the concepts of diversity including race and ethnicity, sexual orientation, and religion and see how these identities intersect with gender. Additionally, future researchers should attempt to study these three conditions again using a different method than written recall for the study. For example, a written narrative could invoke similar feelings and provide a more controlled and specific example of both microaggression and blatant discrimination that women commonly experience. This could help account for some of the variability participants might have about definitions of both microaggressions and discrimination. Future researchers should also try to collect data from a larger pool of participants to examine the cognitive impacts of microaggression more accurately. Lilienfeld (2017) also examines the limitations of the term microaggression and how the ambiguous nature of microaggressions seems to create a conflict. He states that future researchers need to consider that any act of aggression is not unintentional and additionally that
perpetrators of this aggression have no signs of prejudice. It is important to explore what this might mean for future research and defining what a microaggression means.
References


fashioned and modern prejudices. *Journal of personality and social psychology*, 68(2), 199.


Williams, David R. "Race, socioeconomic status, and health the added effects of racism

Appendix A

Informed Consent

College of Sciences and Humanities

Department of Psychological Science
Muncie, IN 47306-0520
Phone (765) 285-1690

Study Title
Recalling Personal Experiences and Their Effects on Women’s Cognition

Study Purpose and Rationale
The purpose of this research project is to examine cognitive effects of recalling personal experiences.

Inclusion/Exclusion Criteria
To be eligible to participate in this study, you must at least 18 years old. Participation will also be limited to females. You must be able to respond to questions in English, and be physically able to manipulate a mouse and a keyboard.

Participation Procedures and Duration
If you are willing to participate in this study, you will be asked to answer several demographic questions, write about a personal experience, answer some additional questions, and complete a cognitive task. All of these tasks will be administered online on a computer. This study will last 30 minutes to an hour. You will have the option to receive one research credit awarded via SONA.

Data Confidentiality or Anonymity
All data will be maintained anonymously and no identifying information such as names will appear in any publication or presentation of the data.

Storage of Data
Data will be entered into a software program and stored on the principal investigator’s password-protected computer indefinitely. Only the principal investigator and the faculty supervisors will have access to the data. Data will be retained indefinitely with the intent that future researchers may replicate findings from this study.

Risks or Discomforts
Some of the questions on this questionnaire deal with personal experiences. A potential risk from participating in this study is that you may not feel comfortable answering some of the questions or may feel distressed after recalling the personal experience.

If you experience discomfort as a result of participating in this study, potential resources for addressing this experience include:
• Ball State University Counseling Center  
  o Located in Lucina Hall, room 320; phone 765-285-1736  
  o Free and confidential services for BSU students

**Benefits**

There are no perceived benefits for participating in this study.

**Voluntary Participation**

Your participation in this study is completely voluntary and you are free to withdraw your permission at anytime for any reason without penalty or prejudice from the investigator. You are not required to answer any questions that make you uncomfortable. If you withdraw from the study, any information you have provided will be destroyed. If you have any questions or concerns, please feel free to email the investigator at any time.

**IRB Contact Information**

For one’s rights as a research subject, you may contact the following: Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5070, irb@bsu.edu.

**Researcher Contact Information**

Please feel free to contact the principal investigator and faculty supervisor with any questions or concerns. Contact information is listed below.

Principal Investigator:  
Lee A. Bard II, Undergraduate Student  
Psychological Science  
Ball State University  
Muncie, IN 47306  
Email: labard@bsu.edu

Faculty Supervisor:  
Dr. Thomas Holtgraves  
Psychological Science  
Ball State University  
Muncie, IN 47306  
Email: 00t0holtgrav@bsu.edu

Your participation in this study is appreciated.
Appendix B

Demographic Info

Please answer the following questions and choose the option that best represents you:

Are you female identifying human?
- Yes
- No

What is your age?

What is your class standing?
- Freshman
- Sophomore
- Junior
- Senior

What race do you identify with (check all that apply)?
- White
- Hispanic, Latinx, or Spanish Origin
- Black or African American
- Asian
- Native Hawaiian or Other Pacific Islander
- American Indian or Alaskan Native
- Middle Eastern or North African
- Other race or origin

What is your ethnicity (check all that apply)?
- White
- Hispanic, Latinx, or Spanish Origin
- Black or African American
- Asian
- Native Hawaiian or Other Pacific Islander
- American Indian or Alaskan Native
- Middle Eastern or North African
- Other race or origin

What is your sexual identity?
- Heterosexual (Straight)
Recall Instructions

**Condition 1 (Blatant Discrimination):** One of the things that we’re examining in this study is what people can recall about their past experiences. We’d like you to think back and try to recall an incident in which an individual made a comment related to your gender with the intent to discriminate and it offended you. Choose a specific event as opposed to a series of events or a drawn-out traumatic period. Next, take your time and report everything that you can remember. Make sure to leave nothing out. Start at the beginning and give a complete description of the entire event. For the next five minutes, please write down everything that you can recall about that experience. As you write, do not worry about punctuation or grammar, just write as much as you can about your experience.

**Condition 2 (Microaggression):** One of the things that we’re examining in this study is what people can recall about their past experiences. We’d like you to think back and try to recall an incident in which an individual made a comment related to your gender that was ambiguous in terms of intent. In other words, the comment could be taken as offensive but you weren’t sure. Choose a specific event as opposed to a series of events or a drawn-out traumatic period. Next, take your time and report everything that you can remember. Make sure to leave nothing out. Start at the beginning and give a complete description of the entire event. For the next five minutes, please write down everything that you can recall about that experience. As you write, do not worry about punctuation or grammar, just write as much as you can about your experience.
Condition 3 (Neutral): One of the things that we’re examining in this study is what people can recall about their past experiences. We’d like you to think back on your very first day on campus and try to remember everything you can about that day. Choose a specific event as opposed to a series of events or a drawn-out traumatic period. Next, take your time and report everything that you can remember. Make sure to leave nothing out. Start at the beginning and give a complete description of the entire event. For the next five minutes, please write down everything that you can recall about that experience. As you write, do not worry about punctuation or grammar, just write as much as you can about your experience.

Positive and Negative Affect Scale (PANAS)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now, that is, at the present moment. Use the following scale to record your answers.

<table>
<thead>
<tr>
<th></th>
<th>very slightly or not at all</th>
<th>a little</th>
<th>moderately</th>
<th>quite a bit</th>
<th>extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>interested</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>distressed</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>excited</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>upset</td>
<td></td>
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<td></td>
<td>strong</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>guilty</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>scared</td>
<td></td>
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<tr>
<td></td>
<td>hostile</td>
<td></td>
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<tr>
<td></td>
<td>enthusiastic</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>proud</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>irritable</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Alert

ashamed

inspired

nervous

determined

attentive

jittery

active

afraid

Vividness and Detail Likert Scales

Please rate the vividness and clarity of your memory.
Please rate the level of detail of your memory.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>very poor</td>
<td>completely vivid and clear</td>
<td>excellent</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Office of Research Integrity
Institutional Review Board (IRB)
2000 University Avenue
Muncie, IN 47306-0155
Phone: 765-285-5070

DATE: January 26, 2017
TO: Lee Bard II
FROM: Ball State University IRB
RE: IRB protocol # 1003392-2
TITLE: Recalling Personal Experiences and Their Effects on Women's Cognition
SUBMISSION TYPE: Amendment/Modification
ACTION: APPROVED
DECISION DATE: January 26, 2017
REVIEW TYPE: EXEMPT

The Institutional Review Board reviewed your protocol on January 26, 2017 and has determined the procedures you have proposed are appropriate for exemption under the federal regulations. As such, there will be no further review of your protocol, and you are cleared to proceed with the procedures outlined in your protocol. As an exempt study, there is no requirement for continuing review. Your protocol will remain on file with the IRB as a matter of record.

Exempt Categories:

**Category 1:** Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

**Category 2:** Research involving the use of educational test (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior.

**Category 3:** Research involving the use of educational test (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under category 2, if: (i) the human subjects are elected or appointed officials or candidates for public office; or (ii) Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

**Category 4:** Research involving the collection of study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.
<table>
<thead>
<tr>
<th>Category 5: Research and demonstration projects which are conducted by or subject to the approval of Department or agency heads, and which are designed to study, evaluate or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in methods or levels of payment for benefits or services under these programs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 6: Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed which contains a food ingredient at or below the level and for a use found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.</td>
</tr>
</tbody>
</table>

**Editorial Notes:**

1. **Modification Approved**

While your project does not require continuing review, it is the responsibility of the P.I. (and, if applicable, faculty supervisor) to inform the IRB if the procedures presented in this protocol are to be modified or if problems related to human research participants arise in connection with this project. **Any procedural modifications must be evaluated by the IRB before being implemented, as some modifications may change the review status of this project.** Please contact (ORI Staff) if you are unsure whether your proposed modification requires review or have any questions. Proposed modifications should be addressed in writing and submitted electronically to the IRB (http://www.bsu.edu/irb) for review. Please reference the above IRB protocol number in any communication to the IRB regarding this project.

**Reminder:** Even though your study is exempt from the relevant federal regulations of the Common Rule (45 CFR 46, subpart A), you and your research team are not exempt from ethical research practices and should therefore employ all protections for your participants and their data which are appropriate to your project.

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Bryan Byers, PhD/Chair  
Institutional Review Board

Christopher Mangelli, JD, MS, MEd, CIP/Director  
Office of Research Integrity