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The Backbone of Positivism

The greatest human inventions are those which could never be held in one's hand. They hold the most influence over the future of humanity, for better or worse. An example of a radical conceptual invention is the scientific method: the gateway to discovery. With the scientific method, humans have been able to map out galaxies at unfathomable distances as well as reenact the dawn of time with our large hadron collider. Most importantly, thanks to the scientific method, we have begun to discover how the mind functions: why humans act the way that they do in given scenarios. Like all branches of science, the study of psychology involves a combination of both 'easy' and 'hard' problems.

Easy problems are those which can be answered through the scientific method, such as what structures in the brain are responsible for providing our sense of reality? Difficult questions are ones which do not currently seem answerable though empirical research; for example, why does manipulation of the brain in psychotic disorders cause us to see the specific hallucinations that we do? How is our brain able to precisely translate electro-chemical signals into sight, yet unable to decipher what we are truly observing from what it is artificially placing into our vision? It is often these difficult questions which matter most in the name of progress, and certainly they are the most interesting questions to answer.

Unfortunately, giant leaps of progress are rarely forged by a single team of scientists, but rather rest upon the back of the entire scientific community. Being a very young field of science, psychology must still undergo an empirical Cartesian method. In order to answer the difficult questions, we must first question all knowledge which we have taken for granted, establish the very basics, and work forward.

It is the job of the pupils to collectively answer the easy questions so that a solid foundation and understanding of human cognition can be built. What seemed unanswerable by our ancestors is now being empirically demonstrated by our fellow scientists in the field; what seems unanswerable to us now may be demonstrated by our generation in the future.

The only thing we can be certain of is that without our dedicated professors to guide us through the process that is psychological research, the world will never come to understand the human mind. In reflection of this unwavering truth, it is with the greatest sincerity that we express gratitude not only towards the hard working students who are enthusiastically dedicating their time and energy to the daunting task of contributing to modern psychology, but also for the deserving professors who relentlessly drill the necessary tool of the scientific method into our minds. It is only through the collection of countless mind teaching, performing, and publishing of research which allows for the possibility of genuine knowledge.

Jacob Grossman and Jennifer vanVeen
Student Editors

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Empathy, Moral Disengagement, and the Bystander Effect in Cyberbullying

Brandy Blankenship
Western Connecticut State University

Research has looked at cyberbullying in regards to the cyberbully, the victim, and the people who witness the event, but little research has been done on undergraduates who act as cyber-bystanders. The relationship of intrinsic characteristics, such as empathy and moral disengagement, and people's responses to a scenario regarding the degree of help they would provide a person being cyberbullied were examined in the current study. Eighty participants from a northeastern university were given a survey that contained questions related to witnessing a cyberbullying scenario where cyber-bystanders were present or were not present. Other questions pertained to the participants' level of empathic concern, perspective taking ability, and overall use of moral disengagement. The number of social media accounts owned was also taken into consideration as part of the participants' experience in online communication. The results indicated that high levels of empathic concern and low levels of moral disengagement were associated with participants' expressing that they would be more likely to help the victim of cyberbullying. Having more social media accounts was also associated with participants' being more likely to help. The bystander effect also came into play because participants were less likely to help the victim when other cyber-bystanders were present. These results suggested that empathy and moral disengagement are two major intrinsic characteristics that influence how a person will respond to witnessing cyberbullying. Further research needs to be done on cyber-bystanders in order to fully understand the role of responsibility in witnessing a cyberbully situation and how owning more social media accounts results relates to empathy and moral disengagement.

Cyberbullying is a major problem that has arisen with the use of technology and the general use of the internet and electronic devices for communication and socialization (Langos, 2012). One's social life can now include the use of cell phones, laptops, iPods, tablets, and many other devices, and with the use of social media, social issues that were once limited to face-to-face contact have now extended to an intangible plane of existence. Bullying, one of the oldest social issues, is the repetitive act of aggression or intimidation on another with the intent to harm where there is an obvious power imbalance between the bully and the victim (Langos, 2012). Cyberbullying is a form of bullying that occurs in an online environment without physical aggression or face-to-face contact. Also, in a cyber environment, victims of cyberbullying cannot remove themselves from the vicinity of their aggressors because their aggressors are harassing or intimidating them outside of the local spectrum, such as in school or at work, so it can happen anytime, anywhere, and to anyone (Langos, 2012). To make matters worse, cyberbullying can operate under the cloak of anonymity, so the victim may never have a chance to even confront the harasser. Social media sites have introduced both a direct and indirect way for cyberbullying to take place, as social media pages can be created and dedicated to slandering, harassing, and intimidating a particular person. If the page is public, then many people can repeatedly view the act of cyberbullying (Langos, 2012).

While there are environmental differences between bullying and cyberbullying, research has shown that bullies and cyberbullies carry the same intrinsic characteristics that make them more prone to perpetuating the act of bullying or cyberbullying (Ang & Goh, 2010; Renati, Berrone, & Assunta Zanetti, 2012). As with the traditional sense of bullying, cyberbullying involves more than just a cyberbully and a victim, but also cyber-bystanders. Witnesses who support or condone cyberbullying also tend to share these characteristics with bullies and cyberbullies as well (Barliñska, Szuster, & Winiewski, 2013; Freis & Gurung, 2013; Thornberg & Jungert, 2013). Witnesses of cyberbullying are important to consider because how they act or do not act in a cyberbullying situation may have a direct impact on cyberbullying intervention (Barliñska et al., 2013; Freis & Gurung, 2013; Thornberg & Jungert, 2013).

Cyberbullies and people who support or condone cyberbullying tend to have a low amount of empathy for others (Ang & Goh, 2010; Barliñska et al., 2013; Freis & Gurung, 2013; Renati et al., 2012). Empathy is the ability to understand how another person feels and why the person carries those feelings. Empathy is an essential construct in the role of cyberbullying because it is the ability that connects or disconnects a person from another, and not being able to empathize with the victim would enable a

Correspondence concerning this article should be addressed to Brandy Blankenship, Department of Psychology, Western Connecticut State University, 181 White Street, Danbury, CT 06810. Email: *blankenship004@connect.wcsu.edu.* This research was conducted under the supervision of Tara Kuther, Ph.D.

person to act maliciously towards another. In cyberbullying, cyberbullies tend to show a lack of empathy towards their victims, such as in Ang and Goh's (2010) study that examined the differences between two different constructs of empathy in cyberbullying. Affective empathy, which involves being able to experience emotions and share in them, and cognitive empathy, which involves being able to understand emotions, was found to be negatively related to a self-report of cyberbullying behavior among adolescents from a middle school and a high school in Singapore (Ang & Goh, 2010). Specifically, low levels of empathy were associated with more cyberbullying behavior.

Barliñska et al. (2013) examined how empathy influenced the behavior of witnesses. Specifically, they looked at participants who experienced negative bystander behavior by assisting the cyberbully in the perpetration of the act or doing nothing to stop the cyberbullying. These participants would respond in a pro-cyberbully manner by assisting or supporting the cyberbully and feel less empathy towards the victim of the cyberbullying situation. When these same participants were shown a video that induced affective empathy, they became less positive towards the cyberbully and more empathetic towards the victim. Others who were shown the same video and given a response exercise to the video in order to induce cognitive empathy also experienced a greater amount of empathy towards the victim. In all, having a greater amount of empathy was associated with less pro-cyberbullying behavior.

In another study, Freis and Gurung (2013) looked at empathic concern for others through the use of a live Facebook discussion that included a situation of cyberbullying. Participants would be included in a chatroom with two other people, and one person who posed as the victim would reveal having a homosexual orientation, and the other person who posed as the cyberbully would start attacking the person for it. Participants were able to respond to the situation in an open-ended way, and the cyberbullying would stop once the participant mentioned that they would not condone it. Freis and Gurung (2013) measured the participants' responses by categorizing them into whether the participants intervened or not, and for those who did intervene, they were categorized as using direct language, changing the subject, offering comfort to the victim, and attacking the cyberbully. They also studied empathy, anxiety, and the Big Five personality traits. Participants' empathic concern, or affective empathy, and perspective taking abilities, or cognitive empathy, were two of the four subscales that Freis and Gurung (2013) took into consideration in determining whether participants who intervened in the Facebook conversation differed in these two areas from those who did not intervene or favored a certain intervention strategy. It was found that having high empathy was associated with intervening in the cyberbullying situation. Also, the ability to take on another perspective was linked to intervening as well.

People who have little empathy for others also tend to separate their moral and ethical beliefs from a situation or context through the use of certain mechanisms in order to refrain from acting in a way that would be considered morally right (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Renati et al., 2012). This process is known as moral disengagement, and cyberbullies and those who witness cyberbullying have been shown to use it. For example, Renati and colleagues (2012) found that Italian adolescents who were classified as cyberbullies displayed not only a lack of affective empathy for others, but also a high usage of mechanisms of moral disengagement. These mechanisms include morally justifying one's actions, distorting just how damaging the consequences are, dehumanizing others involved, and diffusing responsibility among other witnesses (Bandura et al., 1996).

Another study by Thornberg and Jungert (2013) looked at moral disengagement in teenaged witnesses of the traditional, face-to-face bullying. Participants' moral disengagement was looked at as a whole rather than singling out a specific mechanism with higher scores implicating a higher use of mechanisms of moral disengagement. In the study, high scores of moral disengagement were found to correlate with low levels of moral sensitivity and pro-bully behavior (Thornberg & Jungert, 2013). They found that people were more likely to engage in bullying behaviors or encourage it when they had high moral disengagement scores.

Apart from intrinsic characteristics such as empathy, perspective taking, and moral disengagement is the experience a person carries in online situations. The more time spent online, the more likely a person is exposed to cyberbullying situations (Barliñska et al., 2013; Sticca, Ruggieri, Alsaker, & Perren, 2013). Not only does exposure increase, but Barliñska et al. (2013) found that pro-bully behavior increases with more online contact. Also, Sticca et al.'s (2013) study found that one of the longitudinal risk factors for engaging in cyberbullying was the frequency of online communication, with a higher likelihood of engaging in cyberbullying being related to a higher frequency of online communication. Experience was the only longitudinal risk factor that held any merit to the likelihood of engaging in cyberbullying, even more so than the intrinsic characteristics of others. Social media has become an integral part of today's society in communicating with others, putting people at a higher risk for engaging in cyberbullying behaviors and being a part of cyberbullying situations.

Intrinsic characteristics and experience in online communication may be important to consider in how people respond to witnessing a cyberbullying situation, but situational factors could also influence the behavior of people as well. A famous case often referred to for the behavior of witnesses is the murder of Kitty Genovese in 1964 where many people heard Genovese screaming for help as she was being attacked and none of these people intervened in the situation or reported the incident to police. Darley and Latané (1969) conducted an experiment on how people act in an emergency situation when they were alone as opposed to when they were told that other people were also witnessing the situation. They found that people were less likely to feel personally responsible and subsequently react to the emergency when they thought other people were witnessing the same situation. When people were alone, they felt more personally responsible and reacted to the emergency. These results led to the creation of the bystander effect, which is when having a group of witnesses creates a diffusion of responsibility that would not occur had the person been the sole witness. Just as

intrinsic characteristics influence cyber-bystanders in a cyberbullying situation, the bystander effect can also influence how cyber-bystanders respond.

The current study examined and analyzed the intrinsic characteristics of people and the association of supporting or not supporting a victim of cyberbullying. It is hypothesized that having more empathic concern for others and having more of an inclination to take on another's perspective will be associated with doing something to support the victim rather than doing nothing to support the victim. It is also hypothesized that a higher usage of moral disengagement mechanisms will be associated with being more likely to do nothing to help the victim. Also, the link between the number of social media accounts and behavior will be examined. The number of social media accounts one owns will be looked at in order to see if having a higher number of them will be associated with doing nothing to support the victim. Finally, the bystander effect will be studied to determine whether participants will be less likely to engage in a supportive action and be more likely to do nothing to help the victim when there are other cyber-bystanders present.

Method

Participants

A convenience sample of 80 participants (52 females and 28 males ranging from ages 18 to 53) was selected from a public northeastern university. The average age of the participants was 21.41 (*SD* = 5.20). The participants were recruited from a flyer posted on the bulletin board in the university's psychology department. Extra credit or course credit was given to participants whose professors approved of the compensation.

Materials

All participants received a survey packet with various materials given.

Demographic Information. Participants were asked about their age, gender, year in college, estimated grade point average (G.P.A.), and what social media accounts they have from the following list: Facebook, Twitter, Tumblr, LinkedIn, Instagram, Vine, Snapchat, Flickr, Pinterest, and Google+ (Appendix A).

Cyberbully and Cyber-bystander Scenario and Responses. Participants were presented with a scenario describing a victim of cyberbullying, specifically a person named Jordan who was being slandered on a social media webpage by an unknown cyberbully (Appendix B). One half of the participants received the cyber-bystanders option, where other people witnessed the cyberbullying, while the other half received no other people witnessing the cyberbullying option. Each scenario contained the same questions attached to it asking how likely the participants would engage in each of the following on a four-point scale (1: Not Very Likely; 4: Very Likely): Post a comment asking people to stop; Report the webpage; Comfort Jordan by posting something nice; Waiting to see what others do; Do nothing.

Moral Disengagement. Moral disengagement describes how detached people are from standard moral principles in certain situations. Participants were asked to report how much they agreed or disagreed with statements about online aggression and morality based on Bandura et al.'s (1996) classic Mechanisms of Moral Disengagement Scale. The classic scale had been revised to refer to online aggression instead of physical bullying and pertain to college students instead of children and adolescents. The current scale (Appendix C) consisted of 11 items (a = 0.67); one item was dropped as it showed poor consistency with the scale. The 11 items included statements such as: "It is okay to trash someone online to protect your friends" and "It's okay to troll people who don't have feelings." Scores ranged from Not Very Likely (1) to Very Likely (4) on a four-point scale.

Interpersonal Reactivity Index. Participants were asked to report how much they felt that a statement about views of social interactions and situations pertained to them in order to measure four different factors of empathy. Responses ranged on a four-point scale from "Not at all like me" (1) to "Very much like me" (4) for the 28 items, which were measured by the subscales of Empathic Concern, Perspective Taking, Fantasy, and Personal Distress (Appendix D). The current study utilized the subscales of Empathic Concern and Perspective Taking. Empathic concern is the amount of understanding or consideration that a person can feel for others, which is utilized by one's affective empathy (Frí as-Navarro, 2009). For the Empathic Concern subscale, there were 7 items (a = 0.78). Sample items included "I often have tender, concerned feelings for people less fortunate than me" and "Sometimes I don't feel very sorry for other people when they are having problems." A total score was computed by adding the responses to the items together. Perspective taking is the ability to take the point of view of another person or imagine being in a similar situation, which utilizes one's cognitive empathy. The Perspective Taking subscale contained 7 items (a = 0.81), and sample items included "I try to look at everybody's side of the disagreement before I make a decision" and "I sometimes try to understand my friends better by imagining how things look from their perspective." A total score was also computed by adding the responses to the items together.

Procedure

Participants were greeted at the door of a psychology lab in the university's psychology department and asked to read and sign a consent form. After completing the informed consent, participants completed the survey. The participants were then thanked for their time and participation in the research.

Results

Participants' responses to the cyberbully situation were looked at in order to find a relationship between or among the five possible responses (Post a Comment, Report Webpage, Comfort Jordan, Wait to See What Others Do, and Do Nothing). Table 1 showed the average rating participants put down for how likely they thought they would be to respond in each of the five ways.

Table 3 showed that Post a Comment, Report Webpage, and Comfort Jordan were positively correlated with one another, though Post a Comment and Comfort Jordan had the strongest correlation. All three responses had a negative correlation to the Do Nothing response. Participants were classified as either doing something to support the victim or doing nothing via the "Do nothing" item, where the scale was divided into doing something versus doing nothing based on whether the participant rated Not Likely (1-2; do something) or Likely (3-4; do nothing). Two scores were computed by combining "Post a comment asking people to stop" and "Comforting Jordan by posting something nice," which created a new variable that looked at how active a participant was in helping the victim. Scores were aggregated and categorized the participants into three groups: Low (Scores of 1 to 2), medium (scores of 2.5 to 3), and high (Scores of 3.5 to 4).

Empathic concern, perspective taking, moral disengagement, and the number of social media accounts owned by the participant were explored as the intrinsic characteristics and experience on social media. Table 2 showed the average score for the participants on each variable. Table 4 showed the various relations between the variables. Empathic concern was positively correlated with perspective taking and the number of social media accounts owned but negatively correlated with moral disengagement. Perspective taking was also negatively correlated with moral disengagement.

To address the first purpose of the study, a two-way multivariate analysis of variance (MANOVA) examined the relation of responses to the cyberbullying scenario (doing something versus doing nothing) to participants' empathic concern, perspective taking, and moral disengagement scores along with the number of social media accounts owned by the participant. The two-way MANOVA was significant, F (4, 75) = 5.72, $p < 0.05$, partial $\eta^2 = 0.234$. Participants who reported that they would do something to support the victim scored lower on moral disengagement (M = 15.88, SD = 3.29) than those who would do nothing (M = 17.93, SD = 4.15), F (1, 78) = 5.99, $p < 0.05$, partial $\eta^2 = 0.07$. Also, participants scored higher on empathic concern (M = 24.28, SD = 3.23) than those who would do nothing (M = 21.03, SD = 3.65), F (1, 78) = 18.60, $p < 0.05$, partial $\eta^2 = 0.19$. In addition, participants who would do something to support the victim (M = 4.56, SD = 1.76) had significantly more social media accounts than those who would do nothing (M = 3.43, SD = 1.85), F (1, 78) = 7.38, $p < 0.05$, partial $\eta^2 = 0.09$. On the other hand, participants who would do something to support the victim did not significantly differ from those who would do nothing in regards to their perspective taking scores, F(1, 78) = 2.06, *NS*.

A three-way MANOVA analyzed how active a role participants said they would take in supporting the victim by posting a comment and comforting the victim. The overall MANOVA was significant, F (8, 150) = 3.05, $p < 0.05$, partial $\eta^2 = 0.14$. A univariate test following a significant main effect for empathic concern showed that the most active participants (M = 25.37, SD = 2.32) were higher in empathic concern than medium and low (M = 21.96, SD = 3.55; M = 21.81, SD = 3.70; medium and low, respectively), who did not differ from each other, F (2, 77) = 10.34, $p < 0.05$, $\eta^2 = 0.21$. A second univariate test following another significant main effect for perspective taking found that the most active participants (M = 23.19, SD = 3.81) showed higher perspective taking abilities than the medium (M = 20.22, SD = 3.94), but the low (M = 21.88, SD = 3.92) did not differ from either, F (2, 77) = 3.93, $p < 0.05$, $\eta^2 = 0.09$. The activity level of a participant was, however, not found to differ based on the participant's moral disengagement score, F (2, 77) = 1.06, *NS*, nor was it found to differ based on the number of social media accounts the participant admitted to owning, F (2, 77) = 0.49, *NS*.

The final analyses examined whether cyber-bystanders responded differently depending upon whether they are alone or if there are others present. An independent samples t test revealed that participants were more likely to do something (M = 1.83, SD = 0.93) than to do nothing (M = 2.30, SD = 1.07) in a cyberbullying situation when there were no other cyber-bystanders present, t (78) = 2.12, $p < .05$, d = 0.47. Another independent t test analyzed the scores and found that participants' responses did not differ in regards to the likelihood of posting a comment and comforting Jordan in the presence of cyber-bystanders, t (78) = -0.61, *NS*.

Discussion

The present study examined how participants would respond in a cyberbullying situation by opting to do something or nothing to support the victim. Those who were more likely to do something were low in moral disengagement, high in empathic concern, and owned more social media accounts. The participants who were the most active in doing something to help the victim by posting a comment or comforting the victim had more empathic concern and more perspective taking abilities than those who would do nothing, and participants who reported to be most likely to post a comment and comfort the victim had more empathic concern in comparison to those who would be at the medium and low levels of activity. People who were most likely to post a comment and comfort the victim also had a higher inclination to take another's perspective than those who were at the medium level of activity. Additionally, participants were more likely to do something to help the victim when there were not any other cyber-bystanders present, and when there were other cyber-bystanders present, they were more likely to do nothing to help the victim.

The first hypothesis for the current experiment that having more empathic concern for others and having more of an inclination to take on another's perspective would be associated with doing something to support the victim rather than doing nothing was only partially supported since having more empathic concern for others was associated with a higher likelihood of reportedly doing something to support the victim, but taking on another's perspective was not associated with doing something to support the victim. Empathic concern was described as affective empathy by Frí as-Navarro (2009) and found to play a role in Freis and Gurung's (2013) study on intervention in a cyberbullying situation. While utilizing perspective taking abilities was also examined in Freis and Gurung's (2013) study and found to be a significant factor in cyberbully intervention, the researchers looked at perspective taking as part of a combined score. The current study examined perspective taking separately from other empathy factors.

Perhaps cognitive empathy has to be induced like in Barliñska et al.'s (2013) experiment in order for perspective taking abilities to have a higher impact in the responses of participants to a cyberbullying situation. Participants who were more active in posting a comment or comforting the victim were associated with having higher perspective taking abilities than people who were moderately active, but not with those who were not very active. Perspective taking abilities may not be the best intrinsic characteristic to measure in future studies, though empathic concern seems to be a very crucial element since it also differed in the activity level of participants, though with more consistent results.

Individuals who scored low on moral disengagement were more likely to do nothing to support the victim than to do something, which supported the second hypothesis. These results also supported Thornberg and Jungert's (2013) finding that the higher usage of mechanisms of moral disengagement was related to pro-bully behavior in people who witnessed cyberbullying, as participants from the current study were less inclined to do something to support the victim and were more inclined to do nothing to support the victim. On the other hand, the participants' moral disengagement had nothing to do with how active a role participants would take in posting a comment or comforting the victim, which did not support the hypothesis that moral disengagement as an intrinsic characteristic would differ the activity level of participants.

The number of social media accounts owned by the participants was looked at in order to see if more activity or knowledge of social media would be associated with a higher likelihood of doing nothing to help the victim, but this was not supported in the current study that found the opposite. Sticca et al.'s (2013) findings showed that the greatest longitudinal risk factor involved in experiencing cyberbullying behavior was the amount of time spent using online communications. This was not supported in the current study, though the current study did not look at the exact amount of time people reported to be online. It is unclear whether having many social media accounts translates to spending a lot of time online or communicating a lot online. A better measurement would have been to have secondary questions that asked how long each participant spent on each social media account they owned. Another factor that should be taken into consideration is the amount of face-to-face communication people partake in compared to how much time they spend on social media sites communicating with others. Having many social media accounts may be associated with having more face-to-face communication, which could result in a person being more likely to engage in pro-social behaviors over anti-social ones, such as cyberbullying or supporting cyberbullying. Also, since the hypothesis that the number of social media accounts owned would make a difference in the activity level of participants in helping the victim was not supported, experience may not be as important as intrinsic characteristics, such as empathy, in regards to how active people are in helping victims of cyberbullying. People with higher empathic concern for others may be more likely to engage in pro-social behaviors regardless of how many social media accounts they have or how much they interact and communicate socially online.

Finally, these results illustrated the bystander effect and supported the hypothesis that participants were more likely to do something to support the victim than nothing when there were no other cyber-bystanders present. Even in a cyber environment, the results of Darley and Lantané's (1969) experiment seem to hold true, but employing the same bystander intervention strategies to cyberspace may be a bit more difficult than in a local setting. For one, responsibility is harder to delegate when people can remain anonymous on the Internet, and many social media sites are too large to impose moderators to look at the content of every webpage in order to see if cyberbullying is occurring. Most social media sites do provide an option for people to report malicious content or actions, so perhaps these sites can provide a general agreement for its users to take an active role in reporting the content and make it easier for users to do so. This way more responsibility is put on cyber-bystanders to do something to support the victim because they agreed to do so in order to use or continue using the social media site.

Future research will have to look into what would make a participant feel more personally responsible for acting in a cyberbullying situation. As stated earlier, cyberspace allows for anonymity, and without holding a communicable identity in the environment, it may be hard to make a person feel personally responsible in a cyberbullying situation. Cyber-bystanders may be the key to cyberbullying intervention, so it is important to find ways to mitigate pro-cyberbully behavior and make cyber-bystanders play a more active role in cyberbullying situations. Also, looking into the intrinsic characteristics of cyber-bystanders may help to further analyze why some cyber-bystanders will be more likely to intervene than others even when the bystander effect is present. Empathic concern for others can be induced while moral disengagement can be diminished if people are prompted to feel affective empathy and are reminded of their morals. Since empathic concern and moral disengagement are associated with supporting victims of cyberbullying, they are major intrinsic characteristics that need to be focused on in cyber-bystander intervention. The experience people have on social media sites also needs to be focused on since it is unknown if having more social media accounts is associated with practicing more pro-social behaviors, such as helping victims of cyberbullying, or if people with more social media accounts tend to spend more or an equal amount of time with face-to-face communication. People are adapting to socially communicating online more than ever, and it is important to continue to address social concerns, such as bullying, in this new environment and find interventions for them.

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Table 1
Cyberbully Responses Descriptive Statistics

Cyberbully Responses	n	Min	Max	Mean	Std. Dev	Variance
Post a Comment	80	1	4	2.49	1.079	1.164
Report Webpage	80	1	4	2.98	1.180	1.392
Comfort Jordan	80	1	4	2.89	0.981	0.962
Wait to See What Others Do	80	1	4	2.16	1.119	1.252
Do Nothing	80	1	4	2.06	1.023	1.047
Valid N (listwise)	80					

Table 2
Intrinsic Characteristics and Experience Descriptive Statistics

Characteristics and Experience	n	Min	Max	Mean	Std. Dev	Variance
Empathic Concern	80	14	28	23.063	3.605	12.996
Perspective Taking	80	9	28	21.763	4.032	16.259
Total Moral Disengagement (MD)	80	11	27	16.650	3.745	14.028
Social Media Total	80	0	8	4.138	1.867	3.487
Valid N (listwise)	80					

Table 3
Cyberbully Responses Correlations

Correlations

Cyberbully Responses	Post a Comment	Report Web Page	Comfort Jordan	Wait to See What Others Do	Do Nothing
Post a Comment					
Pearson Correlation	1	-0.38	-0.58	-0.329**	-0.555**
Sig. (2-tailed)		0.00	0.00	0.003	0.00
n	80	80	80	80	80
Report Webpage					
Pearson Correlation	-0.40	1	-0.48	0.03	-0.55**
Sig. (2-tailed)	0.00		0.00	0.78	0.00
n	80	80	80	80	80
Comfort Jordan					
Pearson Correlation	-0.58	-0.48	1	-0.12	-0.51**
Sig. (2-tailed)	0.00	0.00		0.28	0.00
n	80	80	80	80	80
Wait to See What Others Do					
Pearson Correlation	-0.03**	0.03	-0.12	1	-0.29**
Sig. (2-tailed)	0.003	0.78	0.28		0.01
n	80	80	80	80	80
Do Nothing					
Pearson Correlation	-0.55**	-0.55**	-0.51**	-0.29	1
Sig. (2-tailed)	0.00	0.00	0.00	0.00	n
	80	80	80	80	80

**Correlation is significant at the 0.01 level (2-tailed).

Table 4
Intrinsic Characteristics and Experience Correlations

	Correlations			
Intrinsic Characteristics and Experience	Empathic Concern	Perspective Taking	Total MD	Social Media Total
Empathic Concern				
Pearson Correlation	1	-0.44	-0.43**	0.29**
Sig. (2-tailed)		0.00	0.00	0.01
n	80	80	80	80
Perspective Taking				
Pearson Correlation	-0.43	1	-0.32**	0.10
Sig. (2-tailed)	0.00		0.04	0.36
n	80	80	80	80
Total Moral Disengagement (MD)				
Pearson Correlation	-0.43**	-0.32**	1	-0.09
Sig. (2-tailed)	0.00	0.04		0.45
n	80	80	80	80
Social Media Total				
Pearson Correlation	-0.29	0.10	-0.09	1
Sig. (2-tailed)	0.01	0.36	0.45	
n	80	80	80	80

**Correlation is significant at the 0.01 level (2-tailed).

Appendix A

Directions: Please answer the following questions about yourself.

Age: _____

Circle the answer that best applies to you.

Gender: Male or Female

Year in School:

Freshman Sophomore Junior Senior

Estimated G. P. A.: Below 2.00 2.00—2.50 2.51—3.00 3.01—3.50 3.51—4.00

Check all of the following social media accounts that you have:

___ Facebook
___ Twitter
___ LinkedIn
___ Snapchat
___ Pinterest
___ Vine
___ Tumblr
___ Instagram
___ Flickr
___ Google+

Appendix B

Directions: Read the following scenario and answer the questions below as honestly as you can.

College student Jordan was online and discovered an anonymously created webpage full of offensive and horrible comments, The comments were all about Jordan and was open for everyone to see and anyone could make posts. Very upset, Jordan posted to the webpage, asking others to stop. When you read this page you notice that there are no other users on the webpage, and there are no likes on it.

In considering Jordan's dilemma, how likely are you to:

1. Post a comment asking people to stop.

1	2	3	4
Very Unlikely	Somewhat Unlikely	Somewhat Likely	Very Likely

2. Report the webpage.

1	2	3	4
Very Unlikely	Somewhat Unlikely	Somewhat Likely	Very Likely

3. Comfort Jordan by posting something nice.

1	2	3	4
Very Unlikely	Somewhat Unlikely	Somewhat Likely	Very Likely

4. Wait to see what others do.

1	2	3	4
Very Unlikely	Somewhat Unlikely	Somewhat Likely	Very Likely

5. Do nothing.

1	2	3	4
Very Unlikely	Somewhat Unlikely	Somewhat Likely	Very Likely

Appendix C

Directions: Read the following scenario and answer the questions Please indicate how much you agree with the statements below by circling Disagree, Somewhat Disagree, Somewhat Agree, or Agree.

1. It's okay to trash someone online to protect your friends.

Disagree Somewhat Disagree Somewhat Agree Agree

2. If people are living under bad conditions, they cannot be blamed for bad behavior.

Disagree Somewhat Disagree Somewhat Agree Agree

3. It is okay to tell small lies because they don't really do any harm.

Disagree Somewhat Disagree Somewhat Agree Agree

4. Stealing some money is not too serious compared to those who steal a lot of money.

Disagree Somewhat Disagree Somewhat Agree Agree

5. A person who only suggests breaking the rules should not be blamed if others go ahead and do it.

Disagree Somewhat Disagree Somewhat Agree Agree

6. It's okay to troll people who don't have feelings.

Disagree Somewhat Disagree Somewhat Agree Agree

7. If people are careless where they leave their things, it is their own fault if they get stolen.

Disagree Somewhat Disagree Somewhat Agree Agree

8. Teasing someone online, like tagging them in ugly pictures, does not really hurt them.

Disagree Somewhat Disagree Somewhat Agree Agree

9. People who get mistreated online usually do things to deserve it.

Disagree Somewhat Disagree Somewhat Agree Agree

10. It is unfair to blame someone who had only a small part in the harm caused by a group.

Disagree Somewhat Disagree Somewhat Agree Agree

11. People cannot be blamed for misbehaving if their friends pressured them to do it.

Disagree Somewhat Disagree Somewhat Agree Agree

12. It's okay to flame some people because they lack feelings.

Disagree Somewhat Disagree Somewhat Agree Agree

Appendix D

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by circling the appropriate response.

1. I daydream and fantasize, with some regularity, about things that might happen to me.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

2. I often have tender, concerned feelings for people less fortunate than me.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

3. I sometimes find it difficult to see things from the "other guy's" point of view.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

4. Sometimes I don't feel very sorry for other people when they are having problems.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

5. I really get involved with the feelings of the characters in a novel.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

6. In emergency situations, I feel apprehensive and ill-at-ease.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

8. I try to look at everybody's side of a disagreement before I make a decision.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

9. When I see someone being taken advantage of, I feel kind of protective towards them.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

10. I sometimes feel helpless when I am in the middle of a very emotional situation.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

11. I sometimes try to understand my friends better by imagining how things look from their perspective.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

12. Becoming extremely involved in a good book or movie is somewhat rare for me.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

13. When I see someone get hurt, I tend to remain calm.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

14. Other people's misfortunes do not usually disturb me a great deal.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

16. After seeing a play or movie, I have felt as though I were one of the characters.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

17. Being in a tense emotional situation scares me.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

19. I am usually pretty effective in dealing with emergencies.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

20. I am often quite touched by things that I see happen.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

21. I believe that there are two sides to every question and try to look at them both.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

22. I would describe myself as a pretty soft-hearted person.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

23. When I watch a good movie, I can very easily put myself in the place of a leading character.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

24. I tend to lose control during emergencies.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

27. When I see someone who badly needs help in an emergency, I go to pieces.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.

Not at all like me | Somewhat unlike me | Somewhat like me | Very much like me

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How Immediate is Desensitization From Watching Aggressive Media?

Kaitlyn Burnell
Western Connecticut State University

An abundance of research has attempted to establish a link between aggressive media and aggressive behavior; this includes the general aggression model, which discussed how exposure to media aggression can in turn lead to general aggressive behaviors (Bushman & Anderson, 2002), as well as the cathartic theory, which encompasses the idea that aggression is a biological process that must be relieved (Olson, Kutner, & Warner, 2008). The goal of the present study was to examine if watching aggressive television can lead to desensitization in individuals, with participants either watching a brief television clip depicting a shootout or a neutral television clip, and subsequently ranking their feelings regarding aggressive images. Additionally, the present study explored if past and present media habits affected levels of desensitization. It was hypothesized that individuals who have had long-term aggressive media exposure and/or exposure to a brief aggressive television clip would undergo desensitization. Results were not significant, indicating that participants do not experience immediate desensitization after viewing an aggressive clip, and, inconsistent with previous research, aggressive media viewing habits does not lead to overall desensitization.

The present study examined if desensitization occurs immediately after individuals view an aggressive clip and/or after exposure to aggressive media through past and present media habits. Scenes depicting violence and gore are commonly seen in mainstream media, and are therefore the aggressive clips referred to in the present study. There has been growing concern of the effects these clips have upon viewers, especially due to a growing amount of acts of violence amongst young people. There have been several notable acts of violence amongst adolescent and young adult males over the past two decades, including the Columbine, Virginia Tech, and Sandy Hook school massacres. Researchers have attempted to establish a link between the perpetrators, and many fingers have pointed to their engagement in aggressive media, particularly video games. Since college students in particular spend an average of twelve hours a day engaged with some form of media (Coyne, Padilla-Walker, & Howard, 2013), it seems reasonable to speculate that this level of exposure can lead to changes in individuals' cognition and behavior, depending on what type of media they are viewing. Several theories, such as the general aggression model and the cathartic theory, have sought to demonstrate the effects the aggressive media content can have on an individual's behavior.

The general aggression model, established by Bushman and Anderson (2002), discussed how engaging in violent and graphic forms of media can, in fact, lead to individuals behaving aggressively. The general aggression model described how aggressive media exposure can impact arousal, aggressive thoughts and feelings, and overall influence aggressive behaviors (Bushman & Anderson, 2002). The model further described how individuals have certain cognitive scripts that they follow; when exposed to aggressive media, scripts that are specifically fostered by aggression are triggered and increase with repeated exposure (Bushman & Anderson, 2002). Thus, individuals may begin acting more aggressively because their cognitive scripts are increasingly aggressive ones. Bushman and Anderson (2002) detailed how people with more aggressive cognitive scripts tended to interpret ambiguous social events with more hostility, which was a result from each successive exposure to a certain aggressive stimuli. Regardless if the script stemmed from the media, it teaches the individual that the world is dangerous and that aggression is the most appropriate, and perhaps the only, way to confront everyday situations. In support of this model, Bushman and Anderson (2002) discovered that individuals who engaged in a violent video game for twenty minutes led to individuals experiencing significant increases that certain conflict situations will be handled with aggression; participants were tested by being presented a story and being asked about what the main characters would do and say, with participants who played the violent video game describing the characters having more aggressive tendencies. Thus, in accordance with the general aggression model, repeated aggressive media exposure may result in aggressive behavior, due to how the exposure physically changes certain aspects of cognition (Bushman & Anderson, 2002).

In an additional study conducted by Anderson and colleagues (2010), it was established that video game exposure did lead to increased levels of aggressive cognition, and that both short-term and long-term exposure can lead to an increase in aggressive thinking. Furthermore, the study found that aggressive video

Correspondence concerning this article should be addressed to Kaitlyn Burnell, Department of Psychology, Western Connecticut State University, 181 White Street, Danbury, CT 06810. Email: *burnell005@connect.wcsu.edu.* This research was conducted under the supervision of Rondall Khoo, Ph.D.

game exposure led to lower levels of prosocial behavior, as well as individuals expressing less empathy and higher levels of desensitization (Anderson et al., 2010). Moreover, the study demonstrated that aggressive video game exposure led to aggressive behavior and cognition, regardless of whether the method of the study was experimental, cross-sectional, or longitudinal, or if conservative statistical procedures were used (Anderson et al., 2010). Thus, it seems apparent that the general aggression model is supported. In relation to the present study, the general aggression model could indicate that individuals who witness an aggressive media clip will demonstrate desensitized behaviors because cognitively, they will interpret their surroundings as being more aggressive, and will therefore display less shock when confronted with an aggressive depiction; this is empirically supported through Anderson and colleagues (2010) findings that consistent viewing of aggressive material could lead to desensitization in individuals.

However, there also exists contradictory evidence that supported that engaging in aggressive media, particularly video games, can actually reduce aggressive cognition and behavior. One such theory that supports this is the catharsis theory. The catharsis theory described how aggression is a biological process that individuals must relieve (Olson, Kutner, & Warner, 2008). While there are few studies that seek to support the catharsis hypothesis, there is evidence that has indicated that engaging in violent videos games may actually relieve stress, and that individuals who engage in these games feel calmer after playing (Olson et al., 2008). Since individuals are actually engaging and performing behaviors while playing violent video games, it is uncertain if this type of stress-relief can be attributed to the individual simply watching a violent television program or film. However, if the catharsis theory is correct, then it is plausible that viewing aggressive media content will have little effect on desensitizing an individual, since the theory discusses how aggression is a biological process, and therefore may not be brought on if exposed to an aggressive clip.

There was little evidence for the catharsis theory. Bushman, Baumeister, and Stack (1999) conducted a study that examined the effects that displacing anger cathartically has upon individuals. The study presented evidence that when people are exposed to a media message that advocates the catharsis theory – and therefore encourages them to displace anger because it reduces their anger in general – they are more likely to do so after being provoked to anger. When they are exposed to a media message that discourages the catharsis theory, they were less likely to engage in a cathartic activity after being provoked to anger (Bushman et al., 1999). More notably, a second part of the overall study established that when individuals were exposed to a pro-cathartic media message, they still demonstrated more aggressive behavior than the control group even after releasing their anger hitting a punching bag (Bushman et al., 1999). Thus, according to this study, the catharsis theory is incorrect because releasing anger cathartically fails to reduce the individual's overall level of aggression and individuals who try to relieve anger cathartically still have more aggression compared to those who did not relieve anger cathartically.

Due to the lack of evidence supporting the catharsis theory and an overwhelming amount of evidence that buttresses social learning theory and the general aggression model (Bushman & Anderson, 2002; Anderson et al., 2010), it seems apparent that engaging in aggressive media increases aggressive thoughts and behaviors. Drawing upon a variety of studies, Coyne et al. (2013) note how those who engage in aggressive media "have more aggressive thoughts, show less empathy, and are less likely to help those in need immediately after exposure to media violence." Consistent with what Anderson and colleagues (2010) found in the aforementioned study, individuals who engage in aggressive media also demonstrate desensitization. This idea is supported by a study conducted by Fanti, Vanman, Henrich, and Avraamides (2009), where individuals who were exposed to a violent scene initially did not express much enjoyment and felt concern for the victim, but after repeated exposure to the clip, individuals felt more enjoyment and less concern for the victim. Thus, due to repeated exposure to the clip, participants began showing a desensitized reaction to violence and demonstrated less feelings of empathy (Fanti et al., 2009).

There are important ramifications desensitized reactions to aggression can have on individuals, especially impressionable populations such as children and adolescents. For example, in a study exploring the effects that aggressive media has upon adolescent dating violence, it was suggested that constant exposure molds adolescents' viewpoints on violence in general by causing them to be more accepting of violence, which in turn can lead to violent behavior in relationships (Friedlander, Connolly, Pepler, & Craig, 2013). An association was found between amount of time spent watching television – which increases the possibility of being exposed to some type of depiction of violence – in adolescence and emerging adulthood and threats of aggression, robbery, and assault (Johnson, Cohen, Smailes, Kasen, & Brook, 2002). Furthermore, a longitudinal study established a relationship between childhood aggressive media exposure and aggressive behavior (Huesmann, Moise-Titus, Podolski, & Eron, 2003). Thus, exposure and desensitization to aggression as a result of media content has an abundance of negative consequences on individuals.

The present study explored how immediate this desensitization is. Based on previous research, I have developed three hypotheses in regards to the effects that immediate aggressive media exposure has on individuals. First, individuals who are exposed to an aggressive media clip will have a desensitized response to stimuli following the clip, regardless of whether they have had previous long-term aggressive media exposure or not. Second, individuals who are exposed to a non-aggressive media clip and have not had previous long-term aggressive media exposure will not have a desensitized response to stimuli following the clip. Third, individuals who are exposed to a non-aggressive media clip but have had previous long-term aggressive media exposure will still have a desensitized response to stimuli following the clip.

Method

Participants

Convenience sampling was used to obtain 24 participants (nine females and fifteen males), all undergraduates from a northeastern public university. Participants were recruited by a bulletin board notice informing them of the study, and were mostly looking to satisfy a research credit requirement or extra credit. Each participant volunteered to participate in the study, and were 18 years or older.

Design

The study was between-subjects design, with one independent variable being type of media clip shown. This independent variable had two levels: an aggressive media clip and a non-aggressive media clip. The second independent variable was how participants scored on a survey that measured previous aggressive media exposure. The dependent variable was the scores that participants provided that measured their reactions to aggressive and non-aggressive images after watching the aggressive media clip or the non-aggressive media clip. The relationship between participants' past and present media habits and how they viewed aggressive images was also examined.

Materials

Participants were given a ten item survey that collected data about each individual's media habits, both past and present (See Appendix A). Two brief television clips were used, one of aggressive nature that depicted a brief shoot-out and one of non-aggressive nature that depicted individuals in conversation. A PowerPoint consisted of ten slides, each slide with one image that was either aggressive or neutral (non-aggressive); participants viewed each slide one at a time for five seconds and indicated their feelings regarding each image on an answer sheet that consisted of five options: strongly negative, strongly negative, neutral, somewhat positive, strongly positive.

Procedure

Participants were first given a questionnaire that surveyed their previous aggressive media exposure (See Appendix A). These answers were measured on a Likert-scale, with one being definitely does not sound like me and three being definitely sounds like me. The participants were then randomly assigned to either the experiment group or the control group. The experiment group was shown a brief aggressive media clip depicting a shoot-out in the popular television show Breaking Bad. This clip was not excessively graphic or gory. The control group was shown a brief non-aggressive media clip from the same show that simply depicted people talking. Participants then viewed ten PowerPoint slides, with one image on each slide that was either aggressive or neutral, with five images for each. Only the aggressive images were used in the final analysis; the purpose of the neutral images was to not over-stimulate participants with aggressive depictions. These images were not excessively graphic or gory. Participants were asked to rank their feelings regarding each image on a Likert-scale where they indicated whether they felt strongly negative, somewhat negative, neutral, somewhat positive, or strongly positive, with 1 being strongly negative and 5 being strongly positive. Participants were told to indicate positive if the image made them feel happy or excited, and to indicate negative if the image made them feel sad or angry.

Results

Both scales were reliable, with the survey measuring participants' past and present media habits yielding a high Cronbach's alpha of 0.883 and the survey measuring participants' reactions to aggressive images yielding a moderately high Cronbach's alpha of 0.642. A linear regression test was used to examine the relationship between past and present media habits and reaction to aggressive images, and results were not significant ($r = 0.224$, $p > 0.05$; $F\ (1, 22) = 1.167$, $p > 0.05$; $\beta = 0.224$, $t\ (22) = 1.080$, $p > 0.05$). Individuals scored an average of 1.78 on the past and present media habit survey ($SD = 0.52$) and scored an average of 1.93 upon viewing aggressive images ($SD = 0.53$). A 2 x 2 between-subjects analysis of variance test was used to examine the effects that watching the aggressive video clip had upon the reactions to the aggressive images. Participants who viewed the aggressive clip scored an average of 1.82 ($SD = 0.57$) upon viewing aggressive images and participants who did not view the aggressive clip scored an average of 1.63 ($SD = 0.34$). Despite this minor difference, results were not significant for any aspect ($F\ (1, 21) = 1.578$, $p > 0.05$ for past and present media habit survey, $F\ (1, 21) = 1.005$, $p > 0.05$ for condition of if viewers were exposed to an aggressive or non-aggressive clip). There was no interaction effect present.

Discussion

This study examined an individual's past and present aggressive media habits and if frequent exposure to aggressive media led to desensitization when viewing aggressive images. Furthermore, the study examined if viewing an aggressive media clip led to desensitization when viewing aggressive images regardless if the individual had frequent past and present aggressive media habits. Results indicated that viewing a brief aggressive media clip does not cause immediate desensitization, though previous research has established that continuous exposure to aggressive media contributes to an overall desensitizing process for the individual (Fanti et al., 2009). The present study could suggest that this desensitization does not occur immediately, and a very brief aggressive clip is not enough to evoke such a response.

Inconsistent to previous research (Bushman & Anderson, 2002; Anderson et al., 2010), participants in the present study who had frequent engagement with aggressive media, both past and present, did not have a desensitized reaction when viewing aggressive

images. This could be a result from several limitations from the study. For example, the measure used to determine desensitization when viewing aggressive images could have been an inadequate way to gauge participant reactions, with the measure possibly being too broad and the five-point Likert scale perhaps being too small to differentiate changes of feelings regarding the images between the experimental group and the control group. A possible direction for the future would be to have a similar study where participants viewed a brief clip, but instead measuring reactions by having participants rank on a Likert-scale how uncomfortable the image made them feel, rather than having them pick a generic response based on if they felt positive or negative about the image. It is also possible that participants were not particularly honest in their responses regarding the images; though this is always a risk with survey research, this risk could have been amplified by the fact that participants were usually by themselves in the room with the experimenter, and could have felt self-conscious or pressured about what answer to pick. A possible solution to this would be for the experimenter to leave the room when the participant is answering questions regarding each image, so the participant would not feel pressure to answer a certain way. Finally, the aggressive clip shown simply could not have been aggressive enough. Since it was from a popular television show, many participants could have already seen the clip, and since the scene was depicting gunfire, it is probable that most, if not all, participants have seen similar clips before, and thus, the clip would not have been too shocking. Therefore, a possible future direction would be to have a more aggressive clip that is more obscure and have participants view the clip for a longer time period. Despite these limitations and contradictory results regarding how past and present aggressive media habits contributes to desensitization, the present study could suggest that desensitization does not occur immediately after a brief aggressive clip, and that longer and more aggressive clips are perhaps needed to evoke desensitization.

The present study did not support any of the hypotheses. Participants who had previous aggressive media exposure did not have a significant desensitized reaction when viewing the images. Likewise, participants who viewed the aggressive media clip, regardless of if they had previous aggressive media exposure, did not have a significant desensitized reaction when viewing the images. Despite the lack of support for these hypotheses, there is an abundance of previous literature that supports that desensitization occurs after continuous viewing of aggressive media that should not be overlooked. This information must be kept in mind in real-life circumstances regarding graphic video games, television, movies, and more, especially if viewers of this material are impressionable populations such as children and adolescents. As discussed, there are a number of empirical findings that support the negative consequences that aggressive media viewership has on these individuals (Friedlander et al., 2013; Johnson et al., 2002; Huesmann et al., 2003).

There are a number of future directions that can be taken to explore the effect of aggressive media on upon individuals. One possible direction would be to have individuals watch an aggressive clip of the same length of the present study – about three minutes – but, similar to Bushman and Anderson's (2002) test of the general aggression model, have participants write a narrative in order to explore if they create a story with more aggressive tendencies compared to individuals who did not watch an aggressive clip. Another possible direction would be to have multiple experimental groups where participants watch aggressive clips of varying ranks, and to measure if there is a difference in desensitization – such as viewing graphic images – between the groups. These two possibilities would help illuminate truly how immediate desensitization to aggressive media is.

In sum, while the present study did not yield any significant results regarding desensitization after aggressive media exposure – whether immediate or over time – previous research indicates that such desensitization does occur. The present study could suggest that desensitization does not immediately occur after a very brief aggressive clip, and that longer and more aggressive clips could lead to desensitization, which has been supported with previous research (Bushman & Anderson, 2002; Anderson et al., 2010). These findings indicated that especially young and impressionable individuals must use caution when viewing aggressive media content, because of the possible consequences it could have on their behavior. By monitoring and reducing the amount of aggressive content available for viewing, desensitization can likely be reduced amongst individuals.

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Appendix A

Directions: Please indicate the response that best matches your habits.

1. I often play violent video games (Call of Duty, Halo, Grand Theft Auto, etc.)

Definitely Does Not Sound Like Me	Somewhat Sounds Like Me	Definitely Sounds Like Me

2. I often watch movies with a lot of action and gunfire (including adventure, war, etc.)

Definitely Does Not Sound Like Me	Somewhat Sounds Like Me	Definitely Sounds Like Me

3. I often watch slasher films (Saw, Texas Chainsaw Massacre, etc.)

Definitely Does Not Sound Like Me	Somewhat Sounds Like Me	Definitely Sounds Like Me

4. I enjoy watching violent and aggressive television and film

Definitely Does Not Sound Like Me	Somewhat Sounds Like Me	Definitely Sounds Like Me

5. I prefer to watch violent and aggressive television and film over other shows such as sitcoms, comedies, etc.

Definitely Does Not Sound Like Me	Somewhat Sounds Like Me	Definitely Sounds Like Me

6. I often listen to music depicting violent and aggressive scenes

Definitely Does Not Sound Like Me	Somewhat Sounds Like Me	Definitely Sounds Like Me

7. When I read, I prefer to read violent and aggressive stories (including horror, adventure, war, etc.)

Definitely Does Not Sound Like Me	Somewhat Sounds Like Me	Definitely Sounds Like Me

8. I was often exposed to aggressive media (the news, television, film, music, etc.) at a young age

Definitely Does Not Sound Like Me	Somewhat Sounds Like Me	Definitely Sounds Like Me

9. I have been watching violent and aggressive R-Rated movies for quite some time (4+ years)

Definitely Does Not Sound Like Me	Somewhat Sounds Like Me	Definitely Sounds Like Me

10. I have been playing violent and aggressive video games for quite some time (4+ years)

Definitely Does Not Sound Like Me	Somewhat Sounds Like Me	Definitely Sounds Like Me

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The Eye of the Tiger: The Importance of the Eye Region for Animal Threat Recognition

Elana Yaghsizian
Western Connecticut State University

Animal recognition, face recognition, and threat detection are all areas that have been explored using methods ranging from simple search tasks, to eye-tracking, to advanced brain imagery (e.g. Hall, Hutton & Morgan, 2009; Ohman, Flykt, & Lundqvist, 1999; Kanwisher, Stanley, & Harris, 1999). The aim of the current study was to explore the possible similarities between human facial recognition and animal detection, with specific focus on the eyes. It also examined how quickly threat animals can be recognized when compared to non-threat animals. A total of 40 participants were given an animal/non-animal detection task. Conditions were edited images of threat animals (with and without eyes), non-threat animals (with and without eyes), and non-animals (with and without eyes). Stimuli were presented for 100 milliseconds and participants responded either "animal" or "non-animal". Reaction times and accuracy of responses were recorded. Participants were significantly faster at recognizing animals with eyes than without. Accuracy was significantly lower for non-animal with eyes. Threat animals were not detected significantly faster than non-threat animals. The results of this study implied that looking at eyes aids in the ability to recognize animals. The results of this study also supported the growing body of evidence that threatening stimuli may not be recognized more quickly than non-threatening stimuli.

Animal recognition, face recognition, and threat detection are all areas that have been explored using methods ranging from simple search tasks, to eye-tracking, to advanced brain imagery (e.g. Hall, Hutton & Morgan, 2009; Ohman, Flykt, & Lundqvist, 1999; Kanwisher, Stanley, & Harris, 1999). Research on facial perception has revealed that humans developed specific ways in which we display and read facial expressions. For instance, emotions such as happiness or anger can be recognized across cultures (Ekman & Friesen, 1971), and looking at the eyes seemed key to properly discerning emotional states (Hall et al., 2009). Since we have evolved alongside animals as well, it is likely that we have also developed specific ways to interact with them. Despite the research on human facial recognition and animal detection, it is unknown if similarities exist between the manner in which we recognize human faces and expressions and how we detect animal faces. Do we have a tendency to focus on the eyes of an animal as well? Our ability for non-verbal engagement with both humans and animals is likely an important survival skill. Threat detection is another skill which is vital to our survival. There has been a lack of research that sets out to combine what we have learned about threat detection and facial recognition with animal detection. Applying what we have learned about each area of research can allow for deeper exploration of each and also give insight into how they are related.

It seems there has been very little research on how we recognize animals, and most of the research falls under object recognition (Loyde-Jones, Gehrke, & Lauder, 2010). Loyde-Jones et al. (2010) studied animal recognition by using an object/non-object type of recognition task. Participants were told to distinguish between shaded line drawings of animals and non-animals. Non-animals were created by combining sections from multiple animals (i.e. rooster head, dog body, and goat feet.) The researchers also created silhouette version of the animals and non-animal drawings, as they were interested in the importance of contours for recognizing an animal. Loyde-Jones and his colleagues (2010) found that reaction time (RT) was shorter for detection of true animals than the non-animals. They also found an overall faster RT for the shaded line drawings than the silhouetted images. This study has value because it helped identify strategies used to recognize animals. However, animals have the added complexity of facial features, and therefore it is not entirely appropriate to approach animal recognition as a form of object recognition.

Another study examined whether the area of the brain dedicated to human face processing, known as the fusiform face area (FFA), was activated when viewing animals (Kanwisher, Stanley, & Harris, 1999). Using functional magnetic resonance imaging, researchers compared the responses of the FFA to images of human faces, human heads, whole humans, human bodies along with inanimate objects, whole animals, animal heads, and animal bodies. They found that human heads and faces produced a stronger reaction from the FFA than any other stimulus. However, they also found that animal heads and whole animals produced a significantly greater response than objects. Finally, animal bodies alone produced low responses that were similar to the responses produced by objects. The research team concluded this is because animal heads and whole animals also contain faces. Perhaps this indicates that the brain employs similar strategies when

Correspondence concerning this article should be addressed to Elana Yaghsizian, Department of Psychology, Western Connecticut State University, 181 White Street, Danbury, CT 06810. Email: *yaghsizian001@connect.wcsu.edu.* This research was conducted under the supervision of Patricia O'Neill, Ph.D.

processing animal facial features as with human faces.

When it comes to human facial recognition, it seems that looking at the eye area to understand faces is similar across cultures and also develops sooner than employing other techniques (e.g. Peterson & Eckstein, 2012; Lui et al., 2012). A facial recognition task that used eye-tracking with Westerners showed that participants tended to focus just below the eyes (Peterson & Eckstein, 2012). It is likely that this attention to the eye region is biological as it has been displayed with non-Westerners as well (Lui et al., 2012). A study out of China studied facial recognition as a developmental skill, looking at the differences between children (8-9 years old), adolescents (13-14 years old), and adults between 18-26 years of age (Lui et al., 2012). Participants were first exposed to one of six conditions (whole face, eyes, nose, mouth, inner face, or outer face) and were shown a series of whole faces or the aforementioned partial faces. The participants were then shown a second set of images and asked to determine which faces were new and which were previously shown. When compared to adults, adolescents performed just as well for the eye recognition while still underperforming for mouth recognition. These results suggested that eye recognition develops sooner than the recognition of other features.

The amount of attention paid to the eyes can affect the ability to appropriately evaluate emotions (Nacewicz et al., 2006). Women tended to be better than men at accurately and quickly identifying human emotions (Hall & Matsumoto, 2004). Eye-tracking technology has been used to determine the differences in how men and woman read faces (Hall et al., 2009). Male and female participants were exposed to images of each gender expressing various emotions. The participants were asked if the face they were viewing was happy, sad, fearful, angry, or disgusted. The eye-tracking data revealed that women attended to the eye region longer and more frequently than men. On the other end of the spectrum, autistic individuals are reported to have greater difficulty detecting human emotion when compared to normal populations (Humphreys, Minshew, Leonard, & Behrmann, 2007). Research has revealed that autistic individuals have a tendency to avoid looking at the eyes (Nacewicz et al., 2006). The results of these studies suggested that the eyes are a critical indicator of human emotion.

Detection of human emotion, especially anger, is likely an important survival skill that perhaps has similar evolutionary benefits to threat detection. There is evidence that angry faces are detected more quickly than faces displaying other emotions (Pinkham, Griffin, Baron, Sasson, & Gur, 2010). It is a popular notion that threatening stimuli in our environment are also detected more quickly. A well-known study of threat detection showed that humans respond faster to images of snakes and spiders than to images of flowers and mushrooms (Ohman, Flykt, & Lundqvist, 1999). While it is still unclear what mechanism is responsible for the faster responses, it seems likely that the ability to quickly recognize angry faces and threatening stimuli are related. It has been suggested that identifying angry faces requires little attentional resources (Calvo, Avero, & Lundqvist, 2006). Other threat detection research indicated that a combination of factors including perception and emotion are influential in rapid threat detection (LoBue, 2014).

While there is an abundance of research that supported superior detection of threat, there is evidence that refuted this theory (Tipples, Young, & Quinlan, 2002; Wiens, Peira, Golkar & Ohman, 2008). The most popular research on animal threat detection used images of snakes and spiders for the threat stimuli and images of mushrooms and flowers for the non-threat stimuli. Recent research suggested that snakes and spiders actually illicit a disgust response rather than a threatened one (Wiens et al. 2008). A study that compared pleasant animals, unpleasant animals, and fruit did not find results that support faster detection of threatening animals (Tipples et al. 2002). While this study included images of snakes in the unpleasant animal stimuli, they also used dogs, cougars, and other mammals with a threatening open mouth display. The researchers found no significant evidence that threatening animals capture attention better than pleasant animals. It is important to remember that from an evolutionary perspective, perhaps it would be equally advantageous to recognize a non-threat animal as a potential food source as it would be to recognize a threatening animal as a source of danger. It is possible that this could be a contributing factor to the results of the Tipples et al. (2002) study.

The current work was the first to investigate what could be a common thread in threat detection, animal detection, and face recognition: the eyes. The two main goals of this study were to determine how important the presence of eyes are when detecting animal faces and to determine if animals posing a threat are detected more quickly than animals that do not. The independent variables were animal eyes (absent or present) and animal type (threat or non-threat). The dependent variables were reaction time and accuracy. My hypothesis was that eyes are an important feature in animal detection, as they are for human recognition. Given the lack of research on threat detection that uses animal faces (much less eye-contact) and the evidence that angry human faces are detected more quickly, I also expected that threat animals may be detected more quickly than non-threat animals.

Method

Participants

A total of 40 volunteers from the student body of a public northeastern university participated in this study (eight males and twelve females in group 1; five males and fifteen females in group 2). As an incentive, participants were able to fulfill their participation requirement for the psychology department. Participants gave informed consent and were notified that they may leave for any reason. All participants were over 18 years of age.

Materials

Super Lab Software (Cedrus, Corp.) was used to present the stimuli on a computer monitor and to collect RTs along with accuracy. Participants used a computer keyboard to

input their responses. All images used for stimuli were obtained on the internet and resized and modified using Photoshop (Adobe Systems, Inc.) on a Macintosh computer (Apple, Inc.).

Procedure

Participants were given a task to decipher animal from non-animal images, similar to an object/non-object perception task. The stimuli were comprised of animal faces or images from nature. The animal faces consisted of threat animals (i.e. tiger, wolf, bear, etc.) and non-threat animals (i.e. bunny, meerkat, deer, etc.). The orientation of each animal was forward facing. Because some literature suggested that an open mouth is a signal for threat, all animals had closed mouths. To avoid identification via outlines or outer face features, pictures of animals were cropped so that only inner face features could be used. The non-animal stimuli were carefully selected nature images, which have similar textures and colors to the animal faces (i.e. leaves, straw, bark, etc.). These images were also cropped to minimize contextual cues. All images presented were the same size and aspect ratio.

Half of the 20 non-threat animal images and half of the 20 threat animal images were edited so that the eyes were masked by the surrounding fur. This left only the mouth, nose, and fur to be used for animal recognition. Half of the 20 non-animal images had various sets of animal eyes placed on them. The images were divided into two sets of 40 total. Each set consisted of 20 non-animals (ten with eyes and ten without) and 20 animals (five threat with eyes and five without eyes, five non-threat with eyes and five non-threat without). Each set only contained one version of each image. For example, one set had the wolf with eyes and the tiger without, the other had the tiger with eyes and the wolf without. Participants were shown either one set or the other to avoid exposure to both versions of an image.

Images were presented in random order on the computer monitor for 100 milliseconds; participants were then prompted to determine whether the image was of an animal or a non-animal as quickly and accurately as possible. Participants were informed that some images had been altered. Prior to taking the experiment, participants were given a practice task using similar images.

The study was a within subjects design; each participant was exposed to all conditions. The first condition was animal type (threat or non-threat) and the second condition is the presence of eyes (present or absent). RTs and accuracy were recorded. A repeated measures ANOVA was conducted first to check for differences between the two sets of images. Because no significant differences were found, the data sets were combined and analyzed together.

Results

A two-way repeated measures ANOVA with the six condition types (non-animals with eyes, non-animals without eyes, non-threat with eyes, non-threat without eyes, threat with eyes, and threat without eyes) was used to calculate main effects. A significant difference was found among condition type for median RT (F (5, 175)=11.88, $p < 0.001$). Paired sample t-tests were conducted with several combinations to test the hypothesis.

Eyes: Present or Absent

The two animal conditions with eyes were combined (M = 534.36, SD = 149.39) and the two animal conditions without eyes were combined (M = 654.47, SD = 223.42) and the means compared. A significant (t (35) = 5.74, $p < 0.01$) difference in RT was found. Animals with eyes were recognized more quickly.

Non-animal: With or Without Eyes

RTs for non-animals with eyes (M = 727.11, SD = 301.60) were slower than animals without eyes (M = 634.69, SD = 190.94). A paired sample t-test showed a significance effect (t (35) = 2.31, $p < 0.05$).

Animals: Threat or Non-threat

RT between threat animals with eyes (M = 531.81, SD = 151.26) and non-threat animals with eyes (M = 536.92, SD = 167.67) were compared and found no significant difference. (t (35) = 0.27, $p > 0.05$).

Animals Without Eyes: Threat or Non-threat

Non-threat animals without eyes (M = 688.44, SD = 284.32) and threat animals without eyes (M = 20.50, SD = 195.69) showed a significant (t (35) = 2.08, $p < 0.05$) difference in RT; with threat animals recognized more quickly.

Accuracy

The proportion of incorrect answers for each participant in all six conditions was compared (Fig. 1). The non-animals with eyes condition showed the greatest inaccuracy (M = 0.38, SD = 0.32). Threat animals with eyes had the least incorrect responses (M = 0.01, SD = 0.04). A paired sample t-test of these two conditions show a significant difference (t (39) = 7.18, $p < 0.01$).

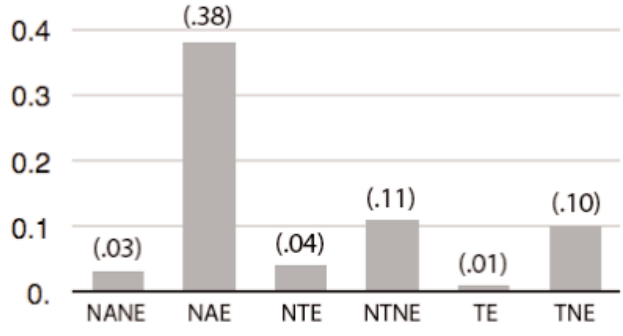

Figure 1. Proportion of incorrect answers for each condition: non-animal/no eyes (NANE), non-animal/eyes (NAE), non-threat/eyes (NTE), non-threat/no eyes (NTNE), threat/eyes (TE), threat/no eyes (TNE)

Discussion

The first purpose of this study was to determine if the presence of eyes are important for our ability to recognize animals. When the reaction times between animals without eyes were compared to the animals with eyes, participants answered significantly faster when the eyes were present. This suggested that eyes do play an important role in our ability to recognize an animal. There were also slightly more inaccuracies in the animal conditions with eyes when compared to those without.

An interesting finding was the significant amount of incorrect responses for the non-animals with eyes condition when compared to all other conditions. The original purpose of using that category was to create an even cognitive load during the decision task when participants were presented an image with eyes. I was not initially expecting to utilize findings for that category. It also took participants significantly longer to respond to this category when compared to the non-animals with no eyes. The proportionately high level of inaccuracy here, in conjunction with slower reaction time, seems to also support how important the eye region is for animal recognition.

Despite the significantly larger proportion of inaccuracy in the non-animals with eye condition, there were very few incorrect responses in the categories of animals without eyes. This was likely because of the other visual cues that were present. Although animal outlines were eliminated in these stimuli, other inner face features were available. In the aforementioned Lui et al. (2012) study with human face recognition, results showed that all age groups were able to recognize familiar eyes at above-chance levels. They also found that 13-14 year olds and adults were able to decipher between old and new noses also at above-chance levels. In the facial recognition study by Hall, Hutton, and Morgan (2009), eye fixations showed that after the eye region, people tend to fixate on the mouth region. Because the nature of an animal face is such that their noses are usually more prominent than the mouth, it may be possible that the nose region on an animal face is as import as the mouth region on a human face. Further investigation on which facial features are most important for animal recognition could compare non-animals and animals with and without both noses and eyes in a manner similar to the current work.

The second aim of this study was to determine if threat animals were detected more quickly than animals which do not pose a threat. Although the results did not show a significant difference, threat animals were detected more quickly than non-threat animals. There was also greater accuracy in detecting threat animals with eyes than any other condition, but those results were not significant either. The insignificant results reflect the findings of the Tipples et al. (2002) study mentioned in the introduction. In both cases, threat animals were represented with threats other than snakes and spiders. This supported the Wiens et al. (2008) study which had suggested that snakes and spiders actually illicit a disgust response which differs from a response to threat. Another possibility for similar reaction times in detection of both threat and non-threat animals was that humans are as much a predator as we are potential prey. In both scenarios, once eye contact had been established, immediate reaction would have been required on the part of the human. One restriction of the current study was that both threat and non-threat conditions were represented by the type of animal rather than a neutral or threatening facial display. Quickly reacting to non-verbal cues such as teeth bearing is considered to be evolutionarily advantageous (Darwin, 1872).

In conclusion, the current study began to make a connection between human face recognition and animal detection. The reaction times for animals with eyes were significantly faster and the inaccurate responses to non-animals with eyes were significantly higher. This suggested that attention to the eyes is a key in detection of animals as it is in humans. Furthermore, the insignificance of faster reaction times to the threat condition lent support to the growing body of evidence that contested the notion of faster threat detection. These results have added value to the ongoing discussion on how we recognize threatening stimuli.

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Is a Picture Worth a Thousand Words? Related vs. Not Related Stimuli

Ashley Figueiredo
Western Connecticut State University

There are different strategies and studies that may help you improve your memory (Rose, Buchsbaum, & Craik, 2014). Previous research have shown that pictures can be recognized faster and more accurately compared to words in short term memory or working memory (Hockley & Bancroft, 2011). This is known as the picture superiority effect (PSE) and has been seen in tests of recall, cued recall, and item recognition (Hockley & Bancroft, 2011). In the present study, it was tested whether college participants recognized pictures better compared to words and whether the designated stimuli was related or not related. Each participant was exposed to one of the four conditions: pictures and words, both in related or unrelated categories. The results of this experiment were not significant, therefore the participants did not recognize pictures better compared to words. Also, participants did not recognize stimuli that were related more accurately compared to stimuli that were not related. Finally, the main effect between the stimuli type (picture or word) and stimuli group (related or not related) was also insignificant.

Keywords: picture superiority effect, pictures, words, related, not related, recognition

How do you remind yourself to do something? Do you use applications on your phone, do you write yourself a note, or are you able to simply remember everything? Do you ever feel like you are having trouble remembering things? Ever wonder whether one could remember certain stimuli more accurately within working memory? Different strategies have been shown to improve memory (Rose, Buchsbaum, & Craik, 2014).

Working memory capacity has been found to predict performance in cognitive tasks. Recognition, in regards to working memory, refers to our ability to "recognize" an event or piece of information as being familiar and also pertains to material learned in the past. It is claimed that pictures have more meaning compared to written words, and therefore cognitive processes operate differently for meaningful items (Carpenter & Olson, 2011). The number of items maintained and recalled in short term memory or working memory has the range of 7 ± 2 with an average of four items (Rose et al., 2014). Working memory tests typically require recalling more than one item; therefore results may vary based on the number of items (Rose et al., 2014).

The picture superiority effect refers to the fact that people can remember pictures better compared to words (Carpenter & Olson, 2011). The dual coding theory explains that the human mind operates with two distinct classes of mental representations-verbal representations and mental images (Carpenter & Olson, 2011). These two systems are functionally independent, but they do interact. This theory states that imagery increases recall of verbal material because when a word evokes an associated image, two separate but linked memory traces are laid down (Carpenter & Olson, 2011). The chances that a memory will be retained and retrieved are much greater if it is stored in two distinct functional locations rather than in just one (Thomas, 2014). According to the levels-of-processing effect theory, successful recall of stimuli is also a function of the depth of mental processing, which is determined by connections with pre-existing memory, time spent processing the stimulus, cognitive effort and sensory input mode (Carpenter & Olson, 2011).

In Seifert's study (1997), participants were shown pictures and words and asked to categorize each item into categories that included animals, clothing, human body parts, furniture, transportation/vehicles, utensils, and appliances. No two stimuli were presented in a row from the same category during the experiment. Prior studies argued that pictures always presented larger than words, which is why participants remembered pictures better (Seifert, 1997). To test this claim, Seifert (1997) used five stimulus sizes for the pictures as well as words. Overall, pictures and words benefited most in categorization when stimuli were of size 1,037 square mm, but picture categorization was still faster than word categorization (Seifert, 1997). These findings are consistent with the notion that pictures have a more privileged access to information in semantic memory (Seifert, 1997). This holds true because semantic memory is visual and is the part of the brain where ideas and concepts are not drawn from personal experience; therefore shortly shown images will be better stored and recognized there (Seifert, 1997).

A different study provided evidence to support that temporary memory store has a much larger capacity than past working memory capacity estimates (Endress & Potter, 2013).

Correspondence concerning this article should be addressed to Ashley Figueiredo, Department of Psychology, Western Connecticut State University, 181 White Street, Danbury, CT 06810. Email: *Figueiredo008@connect.wcsu.edu.* This research was conducted under the supervision of Patricia O'Neill, Ph.D.

Participants saw rapid serial visual presentation of 5-21 pictures of familiar objects or words presented at rates which were too fast to allow for rehearsal. They were then shown a stimulus and were asked if it was previously shown. There was a unique condition (all pictures were unique and were encountered only once in the experiment) and a repeated condition group (participants saw the same pictures repeatedly across trials but without repeats within a trial). The results indicated that participants in the unique condition performed better than those in the repeated condition (Endress & Potter, 2013). The results supported the argument that temporary memory storage has a much larger capacity compared to what was previously assumed and has increasing recognition when stimuli is not repeated (Endress & Potter, 2013).

Roediger and McDermott (1995) studied false recall and false recognition, which may be created by participants during recall and recognition experiments. Participants listened to a list of words and were asked to write down the words they remembered. They were also given a list of words and asked to rate how confident they were that each word was one of the words from the spoken list. They created a master list with corresponding lists of related stimuli. An example of the lists that were used in the experiment is sit, legs, soft, desk, and stool for chair. The results included that participants had a high accuracy rate and a low false-alarm rate on the unrelated stimuli (Roediger & McDermott, 1995). Reports have been made investigating false memories using variants of the Deese-Roedieger-McDermott (DRM) paradigm (Roediger & McDermott, 1995). False memories have been difficult to eliminate in their experiments. Hicks and Marsh (2001) studied whether false recognition could be reduced by incorporating source-monitoring criteria into decision processes. This was done by minimizing with source instructions as compared with old-new recognition instructions. Their results indicated that false recognition was increased rather than reduced by applying the source-monitoring process (Hicks & Marsh 2001).

Quinland, Taylor and Fawcett (2010) studied directed forgetting and how it was affected by two types of stimuli, pictures and words. The participants were shown the stimuli and instructed to either remember or forget the stimuli. Participants exhibited greater yes-no recognition for "remember" verses "forget" items. This difference was significantly smaller when pictures were presented than when words were presented. Quinland and her colleagues (2010) believed this finding is significant because if the instruction is to remember, elaborative encoding is engaged to commit that item to memory. This is the opposite of what happens when asked to forget the item (Quinland et al., 2010). The use of pictures at study may reduce the baseline effect of direct forgetting because pictures have more meaning compared to words and are processed differently (Quinland et al., 2010).

Rose, Buchsbaum and Craik (2014) studied short-term retention of words on retrieval from long-term memory when both rehearsal and refreshing are disrupted. Participants were presented with words and were asked to either rehearse the word or complete an easy or difficult math task. Participants who completed a math task recalled the word at a slower rate and were more error-prone. Participants who completed the difficult math task performed significantly worse in those aspects compared to those who completed the simple math task. Those who rehearsed the word did significantly better than those who completed either math task. The results provided support that disrupted rehearsal and refreshing significantly impact the efficiency of short-term retrieval (Roseet et al., 2014).

Hockley and Bancroft (2011) studied the picture superiority effect (PSE) in associative recognition. They explained that PSE has three general explanations: pictures are more likely than words to be dually represented in memory in verbal and image form, the representations of pictures have more distinctive physical features than do words and therefore are encoded more uniquely in memory, and pictures receive more extensive semantic processing than do words (Hockey & Bancroft, 2011). Their results were consistent with the view that the semantic meaning of nameable pictures is activated faster than that of words thereby affording subjects more time to generate and elaborate meaningful associations between items depicted in picture form (Hockey & Bancroft, 2011).

The present experiment studied whether people found it easier to recall pictures compared to words. It also studied whether the pictures or words were categorically related or not related. The two independent variables were the stimulus type (pictures or words) and the type of stimuli grouping (related or unrelated). The dependent variable was accuracy rates of recall. The hypothesis was that participants would have higher accuracy rates for pictures compared to words and for stimuli that were related compared to stimuli that were unrelated.

Method

Participants

There were 46 participants who were students from a public northeastern university. If they were enrolled in a psychology course that semester, they were compensated for participating in the present experiment with extra credit for their class. If they were not taking a psychology course that semester, they received a pen or pencil for their participation.

Materials

Participants signed an informed consent and completed a computer based experiment. The pictures and words were selected from a word list from Roediger and McDermott (1995). The related pictures were from Roediger and McDermott's (1995) "fruit" category, which included *apple, orange, kiwi, pear, banana, berry, cherry, salad, cocktail, and bowl*. This list was chosen because they could be easily represented through images. All these examples from the "fruit" list either are fruit or have a direct correlation with fruit. The related words were from the "sleep" category, which included *bed, rest, awake, tired, dream, snooze, slumber, yawn, drowsy and peace*. The sleep list was chosen because they were commonly used words and their meaning had a direct correlation with "sleep". The unrelated pictures were from different categories on the list, which included *sock, stool, snow, chess, piano, glacier, sandwich, radio,*

ink and fish. These words were chosen from random lists from Roediger and McDermott's (1995) list because they could easily be represented through images and there was no direct correlation between any of them. The unrelated words were also from different categories on the list, which included *awake, air, kick, above, concert, money, house, wait, road, and chocolate*. These words were chosen from Roediger and McDermott's (1995) list because they were commonly used words and did not have a direct correlation between any of them. The stimuli were presented on the computer using SuperLab (Cedrus, Corp.).

Procedure

Each participant signed an informed consent form before participating in the experiment. If they were enrolled in a psychology class that semester they were also asked to fill out a form for extra credit. They sat at the computer and read the instructions presented on the screen. It informed them that they were going to be exposed to words or pictures and were later going to be asked if the words or pictures were previously shown or not. Once they hit the designated button, the experiment began. They were exposed to either pictures or words, which were either related or not related. Each stimulus was presented for one second. Each condition had ten stimuli which were presented. They were then asked to perform a distracter task, a simple math problem. They were then exposed to pictures or words that were and were not previously shown and were asked to signify by pressing a certain key whether it was previously shown or not. They did not have access to whether they answered correctly or incorrectly. Once this portion is completed, a screen showed up that thanked them for their participation in the experiment. They were given a pen or pencil for their participation.

Results

A two-way-between-subjects ANOVA was used to analyze the data. There was not a significant main effect between the stimuli condition (picture and word), $F\,(1,60) = 3.04$, $p > 0.05$. There was also not a significant main effect between the representation condition (related and not related stimuli), $F\,(1,60) = 0.76$, $p > 0.05$. Finally, there was also not a significant stimuli by representation interaction, $F\,(1,60) = 0.43$, $p > 0.05$. Overall, there was no significant effect for any condition nor the interaction between the two independent variables.

Discussion

The present study examined how participants performed on a computer-based working memory test. Each participant was either shown pictures or words as the type of stimulus, and that stimulus was either related or not related. The insignificant results did not support the previously stated hypothesis nor the picture superiority effect (PSE), which states that pictures are remembered and recognized better than words on explicit tests of memory (Hockley & Bancroft, 2011). The present results also did not support Seifert's (1995) findings which affirmed picture categorization was faster than word categorization due to the notion that pictures have more privileged access in semantic memory compared to words. There was neither a significant difference in accuracy with respect to picture and words categorization nor recognition in the current study. The present results were consistent with Endress and Potter's (2013) study; this suggested that recognition is increased when the stimuli is not repeated. Therefore, the results could not support the argument that temporary memory storage has a larger capacity compared to what was previously assumed. The stimulus pictures and words that were used in this experiment were from Roediger and McDermott's (1995) list, which was used in their "Creating False Memories" experiment. The present results do not support their findings, which included that they experienced low false-alarm rates on the unrelated stimuli (Roediger & McDermott, 1995). It was apparent that participants experience false recall and false recognition during experiments; this has made it difficult for experimenters to eliminate or control. It was assumed, in the present study, that false recognition was present due to the inaccuracy rates with regards to the memory experiment. The present results did not support Quinland, Taylor and Fawcett's (2010) results because there was not a significant difference in the accuracy rates between pictures and words. The current findings did not support their notion that pictures are processed differently in comparison to words and pictures have less direct forgetting compared to words (Quinland et al., 2010). Finally, my results supported Rose, Buchsbaum and Craik's (2014) results that disrupted rehearsal significantly impacts the efficiency of short-term retrieval. In the present study, participants were asked to complete a math task, which served as a disruptive period. However, the results were not significant to support these findings.

One limitation which may have interfered with the results of the present study was not having a quiet enough room for the participants. The experiment took place in a small room where conversations could be heard from down the hall. Also, students who wished to participate in the experiment had to wait in the same room as well. This may have caused more distracting noises for the participant doing the experiment. Some future participants were able to see the computer screen while another participant was taking the experiment, which may have hindered their results because they were exposed to the research experiment. During the math task, participants were asked to type in the correct answer to the math problem. After they did so, it led them to the next portion of the experiment, which was the instruction for recognizing whether the presented stimuli was previously shown or not. The answer was a single digit number. Some participants typed in a double digit number, which skipped the instructions screen. For future experiments, there should be an extra screen just in case the participant typed in a double digit number and skipped the instruction screen. For potential experiments, there could be more than just ten stimuli per group so that there is more data to interpret.

In summary, this experiment tested the notion that people remember pictures more accurately compared to words, and that those stimuli are better remembered when they are related as compared to unrelated. The results concluded that there was no

significant difference between the accuracy rate between pictures compared to words, nor whether they were related or unrelated. There was also no significant different of the interaction between the stimuli (pictures or words) and the representation of the stimuli (related or unrelated).

Short term and working memory is an important asset to have to deal with everyday life. Though the present study does not yield results, literature has reliably supported the picture superiority effect (PSE) and the argument that pictures receive more extensive semantic processing than do words (Hockley & Bancroft, 2011). This could change the way individuals interpret and remember items in their daily life. By changing some of the confounds in this experiment, researchers will hopefully learn more about this phenomenon.

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False Memories: The Effect of Emotional Context on the Intrusion of Unpresented Targets

Kristina Kruse
Western Connecticut State University

False memories can be considered either remembering something that never happened or remembering events very differently than they actually occurred (Roediger & McDermott, 1995). This phenomenon is an important subject of research since it can provide insight to the vulnerability of the human mind and its potential to be compromised. This study investigated the effects of emotional valence (positive and negative emotional associations) and gender on false memory in an effort to determine specific factors of influence on memory and recall. A group of men (n = 12) and women (n = 30) volunteered for this study. Each participant was randomly assigned to one of three groups of emotional valence: positive, negative, or neutral. A PowerPoint presentation was constructed to instruct and present each participant with three lists of 15 words; words varied based on the participant's emotional valence assignment. Immediately after each list, participants performed a recall test. The results displayed no significant effect of emotional valence or gender on false recall. However, additional analyses revealed significant effects of emotional valence on total recall scores. These results suggested that emotional relatedness to memories can affect retention, recognition and recall, and raise concerns for further research of the effects of emotion on memory.

Keywords: false memory, memory, gender, emotion, recall

Emotions have a powerful influence on the decisions we make in everyday life. Emotional connections to past experiences can also trigger irrational responses to current and future events in our lives (McGaugh, 1992; de Sousa, 2014). It has been demonstrated that the link between emotions and memories enhances the capacity of memory, as well as the ability to retrieve information (Choi, Kensinger, & Rajaram, 2012). However, there also has been support for the effect of certain emotional connections to memories in the creation and retrieval of false memories. Emotional connections and associations in memory differ from person to person and across gender, therefore gender differences in the frequency and probability of false memory for emotionally laden targets have also been a recent subject of research (Dewhurst, Anderson, & Knott, 2012).

Several theories have attempted to false memory. Many of these theories focused on the associative processes of memory. Underhood (1965) originally proposed that these false recollections were the result of an implicit associative response (IAR). He explained that the motivation for false recollection started in the encoding process; an event, or word, can make you think of an associated event or word, to the point that later when asked to recall the original event or word, you in fact, recall the associate (Underhood, 1965; Roediger & McDermott, 1995).

Correspondence concerning this article should be addressed to Kristina Kruse, Department of Psychology, Western Connecticut State University, 181 White Street, Danbury, CT 06810. Email: *kruse003@connect.wcsu.edu.* This research was conducted under the supervision of Patricia O'Neill, Ph.D.

Collins and Loftus (1975) described the spreading-activation theory of semantic processing that explained the phenomenon of false memory. According to Underhood (1965), participants became aware of the associate and therefore recalled it when asked. Collins and Loftus (1975) believed that because our memory is organized in associative networks, participants may not be aware of the associates, and activation of the networks of words presented cause residual activations that give rise to false recall (Collins & Loftus, 1975; Roediger & McDermott, 1995).

Furthermore, Raaijmakers and Shiffrin (1981) discussed the search of associative memory (SAM) model and how it can lead to false recall. Again, by means of an associative process, they explained that memory is cue dependent; more specifically, memories are organized as images therefore, what "image" is elicited from memory is dependent on the cue (Raaijmakers & Shiffrin, 1981; Roediger & McDermott, 1995). Because our memory is made up of innumerable sets of networks, retrieval is often muddled and any given cue can elicit a memory from any associate image; moreover, continuous exposure to the same cue (e.g., dream, wake, awake, tired are all cues for sleep) can elicit a memory from a different image (sleep being the different image in a recall task) (Raaijmakers & Shiffrin, 1981). This explained the potential for associative false responses on recall tests.

One of the most frequently referenced studies of false memory is that by Roediger and McDermott (1995). The Deese-Roediger-McDermott (DRM) paradigm has indicated tremendous rates of false recall results across various studies. Cann, McRae, and Katz (2011) conducted research and review on the DRM words lists using knowledge-type taxonomy to classify the semantic stimuli and found that knowledge types predicated

false-recall probability, as well as backward associative strength (BAS). The most significant semantic relationships were situation features, synonyms, and taxonomic relations (Cann, et al., 2011). In Roediger and McDermott's (1995) study, they reproduced Deese's (1959) original research which tested the predictability that a stimulus word would occur as an intrusion in an immediate free recall test. Additionally, after modifications and additions to Deese's (1959) original testing materials, Roediger and McDermott's (1995) participants displayed an increased rate and probability of false recall compared to Deese's (1959) study. Their results demonstrated how vulnerable our memory can be to associative experiences. It is quite interesting and slightly disconcerting to realize how easy it is to influence the human mind to the point that it creates a false memory.

Because it has been demonstrated that our memory is considerably vulnerable to fallacy, Huff, Davis, and Meade (2013) attempted to discover possible strategies the mind has in place for protection against misleading information. They believed that initial recall testing of schematically consistent items used in a contagion task would improve the organization of items in memory and/or create mediators that could be used as retrieval cues that would improve memory and protect against false recognition. Participants were divided into initial-testing and no-initial testing groups for recall tests of picture scenes. They were given a study period to examine household scenes, and then given a filler task. After which, participants in the initial- test group were given a recall task while those in the non-initial test group continued the filler task. All participants were then given a fictitious recall test that contained contagion items, following which they were all given another recall test and were asked to recall items from the original household scene they had studied in the beginning of the experiment. Their results demonstrated a significant effect of preemptive testing on the protection against misleading information recall (Huff et al., 2013).

Along with cognitive strategies, it is understood that emotions could also serve as cues for memory retrieval. Choi, Kensinger, and Rajaram (2012) determined emotional valence's effect on false memory. They compared the prevalence rates of false memory recall for 45 categories of 360 emotion provoking word and pictorial stimuli (i.e. war and funeral for negative; pets and flowers for positive), and categorical neutral word and pictorial stimuli (i.e. materials and geography). Participants were first asked to rate the word/picture stimulus on its "goodness of fit" to the category; for example, rate the word kitten on its goodness of fit to the category pets. They were then given a study period encoding task of 225 trials. Five study items from each category and three nonstudied items that represented false alarms were then used for a self-paced recognition test; in which participants word given a list of 360 words and asked to select "old" if they had seen the word before in the study session, or "new" if they had not previously seen the word; or a cued-recall test in which participants were given a spreadsheet with a list of categories and were asked to type as many items per category that they could remember. They found no effect of emotional context on the prevalence of false memory. However, in their discussion they believe that by organizing the words into categories, the intensity of emotional valence of the words may have diminished during encoding and therefore explains the lack of effect of emotional valence on false recollection (Choi et al., 2012).

Coinciding with the influence of emotional valence on memory is a consideration of possible gender differences in vulnerability to false memories associated with contrasting emotional contexts. Grossman and Wood (1993) tested how theories of the social roles of men and women explain and confirm gender differences in the intensity of expression and feeling of emotions. First, participants were given questionnaires that asked them to assess their own emotional experiences and their stereotypic beliefs as they pertain to men's and women's emotions. The purpose of the questionnaires were to evaluate differences based on the individual's understandings of social roles; the results showed that women report more intense and more frequent emotions than men do, also, woman are perceived to experience emotions to a greater extent than men (Grossman & Wood, 1993). Secondly, they tested physiological responses to emotions in an effort to measure women's increased feeling and expression of emotions; they measured facial movements via electromyography (EMG) to assess emotional responses to visual emotion provoking stimuli from the International Affective Picture System. The participants viewed a slide presentation of images and were asked to rate each image on how positive or negative the image made them feel. The results reported that females displayed an increased amount of facial movements over men, demonstrating greater emotional responsiveness of women (Grossman & Wood, 1993). This variation suggested gender differences in social behaviors and forms the basis for gender stereotyping; typical women are then described as emotionally expressive and concerned with feelings, while typical men are described as emotionally stable, stoic, and not excitable (Grossman & Wood, 1993). With this measureable data on gender differences in the feeling and expression of emotion, this study inquired as to whether or not these gender differences would also be present in false memory of emotionally charged targets.

Dewhurst, Anderson, and Knott (2012) tested the hypothesis of gender differences in false memory of emotionally charged targets; specifically negative valenced associates. Previous research failed to indicate differences in false recall across gender for neutral associates. To challenge the question of whether emotional information would reveal a gender difference in false memory, Dewhurst et al. (2012) conducted a study similar to Roediger and McDermott (1995), using DRM neutral associate lists, as well as 10 negatively valenced lists they created from the University of South Florida's free association norms. Results indicated that women recalled more of the negative critical lures than men, and that women also falsely recalled more negative lures than neutral lures suggesting that women's memory for negative emotional information may be less accurate than that of men (Dewhurst et al., 2012). Dewhurst et al.'s study limited its research to negative specific emotional targets. The present research considered both positive and negative emotional information and their effects on false memory across genders.

This study was designed to evaluate the effect of emotional valence on false recall, and whether or not gender is related to the false recall of such information. The experiment was structured to

that of Roediger and McDermott (1995). A total of nine lists, 15 words each, were used to assess the effects of association on recall. The effect of emotion provoking words on false memory was measured. Three lists of words for each of three degrees of emotional valence (positive, negative, and neutral) were used. The positive and negative lists were comprised of synonyms of the six universal basic human emotions. The three lists of emotionally neutral words were from Roediger and McDermott's (1995) study. The variables tested were emotional valence of the lists (positive, negative, and neutral) and gender. It is hypothesized that the probability of false recall will be higher for the emotionally charged word lists, and that females will be more likely to falsely recall emotionally charged targets.

Method

Participants

A convenience sample of 42 participants volunteered for this study. The study included 12 male participants and 30 female participants whose ages ranged from 18 to 44 years (M = 22.29, SD = 5.08). If eligible, participants received partial course credit or extra credit for participating in the study.

Design

This experiment used a between subjects research design. Participants were randomly assigned to one of three conditions: positive, negative, and neutral word sets. Each set was divided into three sub lists presented sequentially.

Materials

A timed, PowerPoint (Microsoft) presentation was used to instruct the participants on how to complete the task as well as to present the word stimuli for the recall tests. Each task included three separate lists of 15 words of three different degrees of emotional valence; positive, negative, and neutral (see Appendix A for complete word lists).

Procedure

Each participant was asked to read and sign an informed consent. They were then asked to view a PowerPoint presentation that asked them to listen to three lists of words, 15 words per list, one list at a time. Directly after each list, they were asked to recall as many words as they could remember. Each list was presented for approximately 22 seconds (allowing approximately 1.5 seconds per word), and was immediately followed by a two minute time limit for a written free recall test. After completing all three recall tests, the participants were explained the results of their tests and, if applicable, debriefed on their false memory experience.

Results

This research tested the hypothesis that emotional valence and gender would have an effect on the rate and probability of false recall. The results of this experiment did not support this hypothesis. A two-way, between subjects analysis of variance (ANOVA) was used to analyze the data from this experiment. The results indicated no significant effect of emotional valence on false recall, F (2, 36) = 0.73, p = 0.488. The false recall for the positive emotional words (M = 1.81, SD = 0.53), the negative emotional words (M = 2.67, SD = 0.49), and the neutral words (M = 2.14, SD = 0.47) did not differ significantly. The results also indicated no significant effect of gender on false recall, F (1, 36) = 0.06, p = 0.807. The false recall for males (M = 2.13, SD = 0.49) did not differ significantly from the false recall of females (M = 2.26, SD = 0.31). Finally, the results indicated no significant interaction between the emotional valence of words and gender, and their combined effects on false recall, F (2, 36) = 1.56, p = 0.224.

Total recall scores for all participants were also calculated and analyzed for assessment. An additional two-way, between subjects ANOVA was used to analyze the effect of emotional valence and gender on total recall scores. The results of this analysis showed a significant effect of emotional valence on total recall, F (2, 36) = 5.81, p = 0.006. The total recall scores for the neutral words (M = 25.44, SD = 1.07) were significantly higher than the total recall scores for the positive emotional words (M = 20.55, SD = 1.20) and the negative emotional words (M = 21.11, SD = 1.21), both individually and combined. However, no significant effect of gender on total recall score was found, F (1, 36) = 0.39, p = 0.535.

Discussion

This study evaluated the effects of emotional valence and gender on false memory. The results of this study showed evidence of an effect of emotional valence on memory as a whole. Total recall ability across both genders for the emotionally charged word lists was demonstrably poorer compared to that of neutral word lists. These results were consistent with those of Choi et al. (2012) and Dewhurst et al.'s (2012) research involving emotional valence and false memory suggesting a decreased ability for accurate memory recollection of emotional information. Considering the individual effects of emotional valence and gender on false memory, there was no significant difference in the false memory accounts of participants based on either factor. Contrary to Grossman and Wood (1993), these results did not show gender differences in false memory incidence for information related to emotional feeling and/or expression.

It is interesting that the present study did not display gender differences in either false recall or total recall of words with emotional valence. Based on Grossman and Wood (1993) and Dewhurst et al.'s (2012) results, females in this investigation should have exhibited much higher false recall and total recall scores for emotionally charged word lists over men. It is possible

that no significant differences were calculated due to a lack of male participants. The Dewhurst et al. (2012) study cited Seamon, Guerry, Marsh, and Tracy (2002) and stated that having uneven participant numbers across gender, specifically lesser than 50 for each, can lead to data collapse for an accurate gender comparison. However, it may also be possible that the setting in which participants took the test may have affected their recall abilities; those who took the test in a mix-gendered group setting may have felt pressured by other individuals in the group.

There were additional concerns surrounding the results of this study as an accurate reflection of false memory differing across gender and emotional valance. Further consideration should be taken into account for constructing word lists with relevant emotional valence. Although the word lists were created based on the basic universal emotions, further testing of the lists validity in measuring emotional valence should be obtained. Furthermore, in the negative word lists condition, the word fear was presented as a lure word under the target for anger; while under the same condition, fear was also the target of a separate list. This duplicate error possibly confounded the results for false memory. It was also found that during the second and third recall tests, participants continued to write and recall words from preceding presented lists, making it difficult to decipher if recall was either false or accurate. Priming individuals toward a specific emotional valence, as well as reconstructing appropriate recall tests with more concrete word and/or picture associates may be more appropriate improvements for further research into false memory.

It was evident from this study that false memories appeared, but it was still uncertain as to why, and what affects the probability and frequency of false memory. Based on the differences in scores of total recall, it is important to continue research on the effects of emotions and gender differences on memory. Although the results of this experiment did not support the hypothesis as intended, a significant effect of emotional valence on total recall was observed, whereby decreasing the amount of words recalled as compared to neutral words. This led to the assumption that there is some effect of emotion on short term memory capacity and capability. Additionally, these results raised concerns for the encoding and consolidation processes of emotionally charged memories into long-term memory. Again, further research in the area of false memory is encouraged in an effort to find determinants as to why this phenomenon occurs and what may affect its prevalence rates.

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Appendix A

Negative

Anger	Disgust	Fear
mad	loathe	horror
fear	distaste	sorrow
hate	repulse	grief
rage	malice	despair
temper	refuse	hostile
fury	repugnant	scare
ire	dislike	terror
wrath	avert	afraid
outrage	prejudice	worry
fight	disapprove	anxiety
hatred	animosity	fright
mean	reluctant	dismay
gall	disfavor	terrify
emotion	dread	scared

Positive

Happy	Love	Beauty
cheer	bliss	elegant
joy	peace	grace
elated	heart	pretty
glee	lust	lips
merry	passion	blush
gay	devoted	lovely
perky	precious	charm
laugh	fondness	cute
pleasant	cherish	dainty
joyful	care	fair
upbeat	faith	gorgeous
glad	affectionate	lovely
jolly	sincere	face
content	warmth	angel
delight	kind	classy

Neutral

Chair	Music	Sleep
table	note	bed
sit	sound	rest
legs	piano	awake
seat	sing	tired
couch	radio	dream
desk	band	wake
recliner	melody	snooze
sofa	horn	blanket
wood	concert	doze
cushion	instrument	slumber
swivel	symphony	snore
stool	jazz	nap
sitting	orchestra	peace
rocking	art	yawn
bench	rhythm	drowsy

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Cell Phone Attachment: A Study on Undergraduates' Behavioral Addiction to Cell Phones

Brandy Blankenship
Western Connecticut State University

The undergraduate use of cell phones has become a topic of controversy in recent years, especially with texting infringing upon students' health, classroom time, and driving due to the need to read and respond to messages (Murdock, 2013; Tindell & Bohlander, 2012; Weller, Shackleford, Dieckmann, & Slovic, 2013). The present study examined the behaviors and feelings associated with undergraduates' cell phone use in order to determine whether undergraduates' are willing to delay texting in return for the promise of a monetary award. It was hypothesized that reliance and involvement with one's cell phone will be associated with a lower likelihood of delaying texting regardless of the monetary award. The results of this study found no significant difference in delay based upon time and relationship or cell phone attachment. Further research needs to introduce different environmental scenarios in order to replicate behavioral impulses often felt when receiving a text and having the choice to respond immediately or delay response.

Cell phones have advanced well beyond their original purpose for mobile electronic communication and have become an important asset to everyday life. People use cell phones to call and text others, play games, surf the web, take pictures, record and watch videos and audios, and even play music. This small communication device has revolutionized the way people keep in contact and communicate with others by allowing means for instantaneous interaction in almost all locations and at all times. Undergraduate students, especially, use cell phones in their daily lives, and a lot of research has focused on how this integration influences the thoughts and behaviors of these students. Some studies highlight how cell phones can be overused and over relied on to the point where undergraduate students have developed an almost behavioral addiction to their cell phones (Sato, Harman, Adams, Evans, & Coolsen, 2013; Walsh, White, & McD Young, 2010; Weller, Shackleford, Dieckmann, & Slovic, 2013). The constant reliance and involvement associated with people's cell phones can become an unhealthy attachment, which is known as possession attachment.

Possession attachment is a relationship that develops through the interaction a person has with an object (Kleine & Baker, 2004). People who experience attachments to their possessions feel that their objects are self-extensions, meaning that the object reflects an important aspect of themselves. A person's self-concept is a major part of their identity, and when a relationship to an object becomes emotionally complex enough to be included as a part of the person, possession attachment has occurred (Kleine & Baker, 2004). The object itself is not what the person becomes attached to, however; the person is attached to the concept that the object represents. Cell phones allow people to keep in close contact with others and interact socially, and being able to do these things are important to the owner of the cell phone. Also, the ability to own a device that allows for these types of functions causes cell phones to be more valued than other possessions. Interactions with personal items, such as cell phones, can result in possession attachment (Thaler, 1980). This is known as the endowment effect, which is the theory that choices are influenced by the endowment of an object—people place more value on possessions that belong to them than on those that do not.When considering decisions that involve their possession, they will differ than with possessions that do not belong to them. For example, a person's cell phone will mean more to them than another cell phone, even if the other cell phone is in better condition or is worth more. An attachment to a possession results in that possession being highly valued, and as a history builds between the possession and the person, so does the attachment to that possession (Kleine & Baker, 2004).

Cell phone attachment has increased in recent years, especially among undergraduate students. Tindell and Bohlander (2012) reported that out of 269 students surveyed at a private university in northeastern Pennsylvania, 95% admitted to bringing their cell phones to class every day. Cell phones have become just as essential to own and carry as wallets or car keys (Tindell & Bohlander, 2012). Also, 97% of the students surveyed "admitted to sending or receiving text messages while waiting for class to begin" (Tindell & Bohlander, 2012, p. 3), and 92% admitted to sending or receiving texts in class at least once or twice. Undergraduate students are obviously carrying and using their

Correspondence concerning this article should be addressed to Brandy Blankenship, Department of Psychology, Western Connecticut State University, 181 White Street, Danbury, CT 06810. Email: *blankenship004@connect.wcsu.edu* . This research was conducted under the supervision of Patricia O'Neill, Ph.D.

cell phones, allowing them to build a history and see them as an extension of their ability to communicate with others even in the classroom.

Objects can become part of a person's self-concept through its use and meanings (Jin & Park 2010; Walsh et al. 2010). Jin and Park (2010) investigated the interpersonal motives for cell phone use by surveying 232 undergraduate students from two southwestern universities. They found that students who engage in a lot of face-to-face interaction use cell phones more often and that cell phones provided the same satisfaction of interpersonal needs that face-to-face communication provides. Friends and family are part of an individual's self-concept, and cell phones provide people with the ability to continue socializing with those important to them and those who are part of their self-concept. More importantly, people see cell phones as extensions of themselves because they want to be known as a cell phone user—someone who can reliably answer and make calls away from home and send and receive texts (Walsh et al., 2010). Self-identity contributed a lot to the frequency of cell phone use in 946 Australian youth with those who viewed their cell phones as an extension of their identity than those who did not because they used their cell phones more frequently.

As important as cell phones are to people, especially with their attachment to them, cell phones also posed a risk due to the behaviors associated with using them (Sato et al., 2013; Walsh et al., 2010). While cell phones are not inherently meant to be dangerous, the use and reliance of them has resulted in people becoming overly attached to them. Sato et al. (2013) created a Cell Phone Reliance scale that measured how dependent and attached people are to their cell phones. They found that women tended to rely on their cell phones more than men, and the younger the participants were (i.e. age 17 to 24), the more they relied on their cell phones. Walsh et al. (2010) took this concept of relying on one's cell phone one step further and applied Brown's behavioral addiction components to formulating the questions in their Mobile Phone Involvement Questionnaire. Salience, conflict, relief/euphoria, loss of control/tolerance, withdrawal, and relapse and reinstatement were all touched upon by the seven questions of the Mobile Phone Involvement Questionnaire. The study found that "some young people are demonstrating an excessive attachment to their mobile phone similar to the definition of a behavioral addiction" (Walsh et al., 2010, p. 200).

While over-attachment itself is not dangerous, the behaviors that stem from the over-attachment may be (Weller et al., 2014). Cell phone use while driving has been a major problem in recent years with laws being put in place to stop the behavior from occurring. Using a cell phone while driving produced a great distraction to the driver, which can result in serious and sometimes fatal accidents. Weller et al. (2013) used a national sample to explore the influence of possession attachment on cell phone use while driving. Perceived attachment to one's cell phone was a significant predictor of whether or not people would text while they were driving with the greater the perceived attachment, the more likely people were to report texting while driving.

Another danger of over-attachment to one's cell phone involves physical health. Murdock (2013) looked at the effects of texting on interpersonal stress in undergraduates from a southeastern liberal arts college. She also measured the students' academic and social burnout, sleep problems, and emotional well-being. A high frequency of texting was associated with greater academic and social burnout, a greater number of sleep problems, and poor emotional well-being. Consistent with Murdock's (2013) findings, Tindell and Bohlander (2012) found that 31.5% of 190 students surveyed felt that texting while in class resulted in a loss of attention and poor grades, which showed that students may be aware that texting is a problem in certain situations and environments.

Texting in inappropriate and dangerous situations is common with people who are overly attached to their phones, but just what is it about the attachment that encourages people to engage in these dangerous behaviors that affect their life and health? In Weller et al. (2013), the researchers not only looked at perceived attachment, but they also looked at how risky people viewed the act of texting while driving. It was found that people who had a higher perceived attachment to their cell phones also perceived less risk towards the act. Those who had a lower perceived attachment to their cell phones had a higher perceived risk towards the act. Possession attachment influences one's risk perception, which stems from the risk-as-feelings hypothesis. People have emotional and cognitive ways to assess risks, and when people assess risks emotionally, they tend to rely on what people anticipate they will feel in a given situation, while a cognitive assessment focuses more on the pros and cons of the risk. The risk-as-feelings theory found that people are more likely to perceive a risk based on their feelings and not on their cognitive assessment (Loewenstein, Hsee, Weber, & Welch, 2001). Despite what some may think, emotions carry a huge impact on one's perception; when perceiving the level of a risk, emotions influence the person's ability to vividly imagine the outcomes, understand the probabilities of certain outcomes, and influence the amount of fear a person experiences when about to take a risk (Loewenstein et al., 2001).

In Weller et al.'s (2013) study, emotions played a huge role in risk perception. Having an attachment to one's cell phone can mean having an emotional connection to it. In this situation, not only is the endowment effect creating more affinity towards one's cell phone, but the history and self-extension dynamics of the cell phone are creating it as well. The heightened emotional attachment to the cell phone resulted in lower perceived risks of using it while driving (Weller et al., 2013). The level of emotional connection that an individual has with their cell phone moderates how they feel about situations involving them, even if the situations may produce cognitive assessments that find the risks to be too great.

Cell phone attachment is not an inherently bad concept, but in conjunction with maladaptive behaviors, it can be. Undergraduate students showed a greater usage of cell phones, so their behaviors in particular should be examined in order to see if they strongly mirror a behavioral addiction and need to be addressed (Tindell & Bohlander, 2012). Atchley and Warden (2012) examined compulsive cell phone behaviors in college students by seeing

whether the students could delay texting someone in order to receive a larger monetary reward and whether the relationship to that person mattered. While students were not found to be compulsive in their behavior as an addict would be, which would involve being unable to delay texting regardless of the relationship or time, they were found to prefer texting back in order to preserve the value of the immediacy of the message. Monetary rewards did not lose their value over time, but when texting someone back for information (i.e. finding out what that person wanted to say), its value was quickly lost, which may explain why people need to immediately text back, even when in risky situations (Atchley & Warden, 2012).

The current study explored the influence that cell phones have on undergraduate students' behaviors, and specifically examined the relationship between cell phone attachment and willingness to delay texting. It is hypothesized that participants will not delay texting a significant other back, though they will delay texting a classmate in order to receive a larger monetary reward. It is hypothesized that the length of delay will also influence participants' willingness to delay texting. Participants will not delay eight hours to text a person no matter the size of the reward, but they will be more likely to wait one hour to do so in order to receive the larger monetary reward. Females are also hypothesized to be less likely to delay texting than males. Participants' mobile phone involvement and cell phone reliance scores are hypothesized to be strongly correlated with one another as well, and higher scores in these two scales will be associated with greater sleep problems. Higher scores in a participant's mobile phone involvement and cell phone reliance will also be associated with a lower likelihood of delaying texting someone back. The independent variables for this study were relationship (classmate versus significant other), time (one hour versus eight hours), and gender (males versus females). The dependent variable was the likelihood to delay or wait. Cell phone reliance scores, mobile phone involvement scores, and sleep quality scores were other variables that were looked at in this study.

Method

Participants

A convenience sample of 40 participants was selected from a public northeastern university. The average age of the participants was 21.93 (*SD* = 5.10) with 24 females having an average age of 22.25 (*SD* = 5.58) and 16 males having an average age of 21.44 (*SD* = 4.41). The participants were recruited from a flyer posted on the bulletin board in the university's psychology department. Extra credit or course credit was given to participants whose professors approved of the compensation.

Materials

All participants received a survey packet that contained a different texting scenario (Appendix A) based off Achtley and Warden's (2012) experiment involving texting and delay gratification. Two of the texting scenarios had the participants imagine that they received a text from their significant other that read, "Text me when you can." The other two scenarios had the participants imagine receiving a text from a classmate. In one of the significant other texting scenarios, participants were told that they would receive $50 if they texted their significant other back immediately and $150 if they delayed texting back for one hour. In the other significant other texting scenario, the delay was for eight hours. These delays were also the same for the classmate texting scenario, and in all four scenarios, participants were asked to rate the likelihood that they would wait to text the person back (1 = Not wait; 4 = Wait).

Demographics. Participants were asked to answer questions about their demographics, including their age, gender, school year, and estimated grade point average. Also, participants would circle whether they were a commuter or living on-campus, if they were involved in clubs at their university, if they were currently employed, and if they were employed, the number of hours that they worked per week (Appendix B).

Cell Phone Usage. Participants were asked questions about their cell phone usage through a scale that asked how many texts and calls they made per day, how much time they spent on their phone during a normal day, and how often they texted while walking, during class, and during an exam. Participants were also asked to report on the amount of times they saw someone texting during the same three activities (Appendix B).

Cell Phone Reliance Scale. This scale consisted of 25 statements on the personal connection and reliance on one's cell phone that participants rated how much they agreed with by circling Disagree, Somewhat Disagree, Somewhat Agree, or Agree. Items included: "It is important for me to replace my phone within 24 hours if it stops working" and "I would feel lost if I did not have my phone" (Sato et al., 2013; Appendix C).

Mobile Phone Involvement Questionnaire. Seven items focused on participants' psychological connection with their cell phones (Walsh et al., 2010). Participants had the option to circle the following in rating their agreement with the seven statements: Strongly Disagree, Disagree, Somewhat Disagree, Somewhat Agree, Agree, or Strongly Agree (Appendix D).

Pittsburgh Sleep Quality Index. The sleep habits of the participants were addressed in this 10-item scale. Participants circled how often they experienced sleep disturbances and what their regular sleep habits consisted of, such as when they went to bed and how long they usually slept at night (Appendix E).

Procedure

Participants were greeted at the door and asked to read and sign a consent form and then return the form to the student researcher. Once the form was completed and turned in, the participants were given a survey packet to fill out. The student researcher instructed them to read the directions carefully and answer as honestly as they could, and when the participants finished the packet, they were to return it to the student researcher. The participants were then thanked for their time and participation in the research. The student researcher would then input the

data into SPSS 18.0 and analyze the participants' data in a combined format.

Results

Frequencies of cell phone usage revealed that most of the participants reported texting 26 to 50 times a day, and participants, on average, spent about 30 minutes per hour on their cell phone during a normal day. All participants reported that they made between 0 and 25 calls per day, which was the lowest option available for participants to choose from. A majority of participants reported texting once in a while when they were walking and sometimes during class. Almost all participants reported never texting during an exam. In the case of the reported cell phone usage of others, participants reported almost always seeing other people text while they walked and in class. Participants also reported seeing others text once in a while during exams.

A 2 x 2 between subjects analysis of variance examined the independent variables of time (waiting one hour versus eight hours) and relationship of the person being texted back (classmate versus significant other) on the likelihood to delay texting in order to receive a monetary reward. There was not a significant main effect for time, F (1, 36) = 1.45, $p > 0.05$. Also, there was not a significant main effect for relationship, F (1, 36) = 0.16, $p > 0.05$. The interaction between time and relationship was also not significant, F (1, 36) = 0.16, $p > 0.05$.

An independent-samples t test was used to assess gender (male versus female) on delay. There was no significant difference between males and females on the likelihood to delay texting, t (38) = -0.22, $p > 0.05$.

Two more independent-samples t tests were conducted for gender on cell phone reliance and mobile phone involvement scores. There was not a significant difference between males and females on cell phone reliance, t (38) = 0.15, $p > 0.05$. There was also not a significant difference between males and females on mobile phone involvement, t (38) = -0.53, $p > 0.05$.

A multiple linear regression was conducted in order to predict the likelihood of delaying texting from cell phone reliance and mobile phone involvement. Overall, the regression was not significant, F (2, 37) = 1.59, $p > 0.05$.

Multiple correlations were conducted on cell phone reliance, mobile phone involvement, and sleep quality. Cell phone reliance and mobile phone involvement were found to have a significant positive relationship, r (38) = 0.81, $p < 0.05$. There was also a significant positive relationship between cell phone reliance and sleep quality, r (38) = 0.35, $p < 0.05$. Mobile phone involvement and sleep quality had a significant positive relationship as well, r (38) = 0.32, $p < 0.05$.

Discussion

The likelihood of waiting or delaying texting someone back in order to receive a larger monetary reward did not depend on whether this someone was a classmate or significant other or if the time to delay was one hour versus eight hours. This finding rejected the current study's hypotheses that participants would not wait to text a significant other back as opposed to a classmate and that participants would also be less likely to wait eight hours to text someone back as opposed to waiting one hour. Atchley and Warden (2012) found in their study that texting a significant other back was more highly prioritized than texting an acquaintance or friend back, but the current study's results did not support this finding. This difference may be due to the fact that Atchley and Warden (2012) looked at greater time intervals than the current study, so monetary and informational value might have been more considered in the decision. Future research should implement a longer waiting time that looks at not only hours later, but also days later as well. The longer the wait period, the more likely loss of monetary and informational value will occur, and the more likely differences in delay will be seen between texting back a significant other versus a classmate.

Gender also did not play a factor in the likelihood to delay texting back, so the hypothesis that females would be less likely to delay texting than males was not supported. No gender differences were found in participants' cell phone reliance and mobile phone involvement scores, suggesting that gender does not play a factor in determining how much people rely on their cell phones and are involved with them. This contradicted the results of Sato et al.'s (2013) study, which found that women scored significantly higher than men on cell phone reliance. Future research may want to utilize a higher number of males and females in order to find a significant difference in results.

Delaying texting someone back was not related to cell phone reliance or mobile phone involvement. If cell phone attachment was associated with addictive behaviors, then people would not be able to resist texting back regardless of the monetary reward. The attachment should be a more significant predictor in behavior, but the current study's results did not support this. Cell phone reliance and mobile phone involvement, however, were strongly and positively correlated with one another, supporting the researcher's hypothesis that the scores would hold a strong relationship. Cell phone reliance and mobile phone involvement are quite similar to one another, as higher scores on both implicate a stronger attachment to one's cell phone. A stronger attachment may influence texting behavior only in environments and situations where the participant finds it normal and natural to text another in. Instead of looking at just a scenario of receiving a text and having to decide whether to wait or not to text back and receive a monetary reward, future studies should include different situations where the participant is in a classroom or stuck in traffic. A higher likelihood to text in an inappropriate situation than to wait until the participant is out of the situation may insinuate more of a behavioral addiction than waiting to receive an award since the participant now has to decide whether or not to take the risk to text.

Sleep quality was positively correlated with cell phone reliance and mobile phone involvement. Higher scores in sleep quality meant that more sleep problems were present whereas lower scores meant that less sleep problems were present. These findings supported Murdock's (2013) research on college students' text messaging behavior and sleep problems with college students who text a lot experiencing a higher number of

sleep problems than those who do not report texting a lot. Sleep and health is essential to college students, and if cell phone attachment is shown to take a toll, then colleges should implement awareness programs on the dangers of texting too much since it relates to one's sleep quality.

The frequency of cell phone usage suggested that texting on one's cell phone is a normed behavior while calling is not, which was in line with Tindell and Bohlander's (2012) findings that a large number of college students used their phones on a daily basis. Also, more people reported seeing others text while they walked, were in class, and during an exam. This suggested that participants' are either under reporting their own scores or overestimating how often people actually text. People may discount their texting behaviors more because their attachment and emotions felt towards their cell phones may mitigate the frequency of their cell phone use in comparison to others, just as Lowenstein et al. (2001) found in their study on self-other discrepancies in risk preferences depended upon self-other discrepancies in feelings towards the risk, where participants would report stronger emotions and a higher reaction to the risk presented than they would report others' emotions and reactions.

Cell phone attachment is still a relatively new area of research that needs to be examined in regards to college students. Future research needs to concentrate on improving the current study's method in order to examine any behavioral addiction components that other studies have found in association with attachment to one's cell phone. Also, the effects that cell phone usage may have on academics, such as texting in the classroom, should be examined in conjunction with cell phone attachment. Research in this area may help to improve texting in the classroom, which teachers and students found to be a problem (Tindell & Bohlander, 2012), and an intervention here may help other areas of college students' lives.

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Appendix A

Texting Scenario.

Imagine that you received a text from your significant other that read:

"Text me when you can."

If you text your significant other back immediately, you will receive $50. If you wait for one hour to text your significant other back, you will receive $150.

Rate the likelihood that you would wait to text back by circling the corresponding number below:

1	2	3	4
NOT WAIT			WAIT

Appendix B

Demographics.

Instructions: Please write down your age.

Age: _____

Instructions: Please circle the answer that best pertains to you.

1. Gender: M or F

2. School year:

Freshman Sophomore Junior Senior

3. Estimated GPA:

2.00—2.50 2.51—3.00 3.01—3.50 3.51—4.00

4. You are a:

Commuter On-Campus

5. Are you involved in clubs at WCSU?

Yes No

6. Are you currently employed and working?

Yes No

7. If you are currently employed and working, how many hours do you work per week?

10 hours or less
11—15 hours
16—20 hours
21—25 hours
26—30 hours
31 or more hours

Appendix C

Cell Phone Usage.

Directions: Circle the response that best pertains to you.

1. On average, how many texts do you make per day?

0—25 26—50 51—75 76—100 101—125 >125

2. On average, how many calls do you make per day?

0—25 26—50 51—75 76—100 101—125 >125

3. On average, how much time per hour do you spend on your phone during a normal day?

None 5 min 10 min 20 min 30 min 40 min 50+ min

4. Do you text while you walk?

Never Once in a while Sometimes Always

5. Do you text during class?

Never Once in a while Sometimes Always

6. Do you text during an exam?

Never Once in a while Sometimes Always

7. How often do you see others text while they walk?

Never Once in a while Sometimes Always

8. How often do you see others text during class?

Never Once in a while Sometimes Always

9. How often do you see others text during an exam?

Never Once in a while Sometimes Always

Appendix D

Cell Phone Reliance Scale.

Directions: Circle how much you agree with the following statements.

1. It is important for me to replace my phone within 24 hours if it stops working.

Disagree Somewhat Disagree Somewhat Agree Agree

2. I use my phone when I am face to face with one other person.

Disagree Somewhat Disagree Somewhat Agree Agree

3. I feel fine even when I forget to bring my phone.

Disagree Somewhat Disagree Somewhat Agree Agree

4. I avoid going to places with bad reception.

Disagree Somewhat Disagree Somewhat Agree Agree

5. Losing my wallet would be more traumatic than losing my phone.

Disagree Somewhat Disagree Somewhat Agree Agree

6. I use my phone in the bathroom.

Disagree Somewhat Disagree Somewhat Agree Agree

7. I feel more attached to my phone than to most other things I own.

Disagree Somewhat Disagree Somewhat Agree Agree

8. I feel a sense of security when I hold my phone.

Disagree Somewhat Disagree Somewhat Agree Agree

9. It bothers me when I am asked to put my phone away or to turn my phone off.

Disagree Somewhat Disagree Somewhat Agree Agree

10. I use my phone late at night when others are usually sleeping.

Disagree Somewhat Disagree Somewhat Agree Agree

11. Receiving voice/text messages makes me happy.

Disagree Somewhat Disagree Somewhat Agree Agree

12. I send more than 50 text messages to at least one person in a day.

Disagree Somewhat Disagree Somewhat Agree Agree

13. I find myself checking for messages on my phone often.

Disagree Somewhat Disagree Somewhat Agree Agree

14. I am tempted to check my phone for messages at meetings, at work, or in class.

Disagree Somewhat Disagree Somewhat Agree Agree

15. I do not text/phone people unless I have something important to say or ask.

Disagree Somewhat Disagree Somewhat Agree Agree

16. It bothers me if I have not checked my phone/text messages for a few hours.

Disagree Somewhat Disagree Somewhat Agree Agree

17. Whenever something important happens, I immediately text people about it.

Disagree Somewhat Disagree Somewhat Agree Agree

18. I would feel lost if I did not have my phone.

Disagree Somewhat Disagree Somewhat Agree Agree

19. I use many texting acronyms (e. g., OMG, LOL, etc.)

Disagree Somewhat Disagree Somewhat Agree Agree

20. It bothers me when people do not respond to my text messages in a timely manner.

Disagree Somewhat Disagree Somewhat Agree Agree

21. I frequently send text messages with other 50 words.

Disagree Somewhat Disagree Somewhat Agree Agree

22. Using my phone helps me relax when I am under stress.

Disagree Somewhat Disagree Somewhat Agree Agree

23. I send more than 30 text messages in one hour.

Disagree Somewhat Disagree Somewhat Agree Agree

24. I feel comfortable in situations where I cannot use my phone.

Disagree Somewhat Disagree Somewhat Agree Agree

25. I do not check my phone for messages unless I am expecting something very important.

Disagree Somewhat Disagree Somewhat Agree Agree

Appendix E

Mobile Phone Involvement Questionnaire.

1. I often think about my cell phone when I am not using it.

Strongly Disagree Somewhat Disagree Somewhat Agree Strongly Agree

2. I often use my cell phone for no particular reason.

Strongly Disagree Somewhat Disagree Somewhat Agree Strongly Agree

3. Arguments have arisen with others because of my cell phone use.

Strongly Disagree Somewhat Disagree Somewhat Agree Strongly Agree

4. I interrupt whatever else I am doing when I am contacted on my cell phone.

Strongly Disagree Somewhat Disagree Somewhat Agree Strongly Agree

5. I feel connected to others when I use my cell phone.

Strongly Disagree Somewhat Disagree Somewhat Agree Strongly Agree

6. I lose track of how much I use my cell phone.

Strongly Disagree Somewhat Disagree Somewhat Agree Strongly Agree

7. The thought of being without my cell phone makes me feel distressed.

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

Appendix F

Instructions: The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

During the past month:

1. When have you usually gone to bed?

Before 10:00PM	Before 12:00AM	Before 2:00AM	After 2:00AM

2. How long has it taken you to fall asleep each night?

5 min	10 min	20 min	30 min	40 min	50+ min

3. When have you usually gotten up in the morning?

Before 6:00AM	Before 8:00AM	Before 10:00AM	Before 12:00PM	After 12:00PM

4. How many hours of actual sleep do you get at night? (This may be different from the number of hours you spend in bed.)

More than 8 hours	6—8 hours	4—6 hours	Less than 4 hours

5. During the past month, how often have you had trouble sleeping because you:

a. Cannot get to sleep within 30 minutes.

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

b. Wake up in the middle of the night or early morning.

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

c. Have to get up to use the bathroom.

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

d. Cannot breathe comfortably.

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

e. Cough or snore loudly.

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

f. Feel too cold.

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

g. Feel too hot.

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

h. Have bad dreams.

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

i. Have pain.

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

6. During the past month, how often have you taken medicine (prescribed or over the counter) to help you sleep?

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

8. During the past month, how much of a problem has it been for you to keep up the enthusiasm to get things done?

Not during the past month	Less than once a week	Once or twice a week	Three or more times a week

9. During the past month, how would you rate your sleep quality overall?

Very good	Fairly good	Fairly bad	Very bad

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Mental Health Support and Happiness in Adolescents

Heather Wyble
Western Connecticut State University

People may have not received the right mental health support as high school students, which in turn may have a negative effect on them as young adults. This study examined 44 young adults' happiness levels during high school and current happiness levels in relationship with the level of each individual's mental health support and gender. Each participant took a four page survey that analyzed their happiness level during high school, their happiness level currently, and their knowledge and level of mental health support they received during high school. They were also asked their gender, age, and years they attended high school. The results showed that women reported overall higher happiness levels than men, and that men got more mental health support than women. Results suggested that happiness levels during high school are good predictors for later happiness levels. Whether or not participants got support does not predict happiness levels later in life. Nevertheless, this evidence indicated the importance of maintaining one's well-being and happiness and getting the support one needs in case of mental health issues.

Anyone who lived through their adolescent years remembers them to be a significant time in their lives. Through the desire for more independence, the school workload, and the forming of social groups, adolescence can be one of the most stressful periods of one's life. What happens during this time in high school may affect the lives of adolescents for years to come, as this is a period of time when mental health issues may also arise. Having the right sources, support, and help through these issues may be needed for good health and happiness.

The biomedical model of health stated that health problems are only due to the pathology, biochemistry, and physiology of a disease (Sanderson, 2013). This model was proposed in the twentieth century and was the only explanation for mental health issues. At the end of the twentieth century, most causes of death were due to chronic diseases and behavioral choices. The biomedical model was no longer relevant, so a new model was proposed. According to the biopsychosocial model, health and illness are the result of biological factors, as well as psychological factors, and social factors (Sanderson, 2013).

Although the biopsychosocial model is now accepted, there is still a perceived stigma and self-stigma towards issues surrounding mental health (Williams & Polaha, 2014). Perceived stigma (expecting negative outcomes) and self-stigma (embarrassment or shame) are still apparent today, especially for parents seeking mental health services for their children with psychosocial problems (Williams & Polaha, 2014). Due to this stigma, the adolescent years of individuals can be very tough, as parents and adults may have attached a stigma towards mental health services or may cling to the biomedical model of health, ignoring the need for services or support for adolescents.

Recent studies have explained the lack of services for adolescents, the importance of being knowledgeable in mental health issues, and what constitutes and influences happiness (Nunes et al., 2014; Cappela et al., 2012; Carlisle & Rofes, 2007). Nunes et al. (2014) researched the lack of psychotherapy, counseling, and/or health care for mental health through 210 colleges and universities to determine if those colleges and universities provided such. Nunes et al. (2014) found that 68% of the universities and 41% of the colleges provided health insurance, but few of those plans covered the treatment of mental health problems. This lack of services may have an impact on these college students later in life. Not seeking support or not having access to support may only prolong mental illnesses and make those illnesses harder to prevent and treat.

Cappella et al. (2012) studied the impact of a consultation and classroom coaching program, called Bridging Mental Health and Education in Urban Schools (BRIDGE), on elementary school students' behaviors. Consultants trained teachers in a social-emotional and academic learning program, where the overall goals for the teachers included how to provide emotional support to students, how to have an organized classroom, how to have positive teacher-student relationships, and how to focus on the students' behaviors and academics. The teachers in this program used mental health as a basis in their training program. Cappella et al. (2012) found that BRIDGE had a positive impact on classroom interactions, and the teacher-student relationships were very positive. Integrating these mental health techniques, resources, and knowledge in a classroom setting may benefit both

Correspondence concerning this article should be addressed to Heather Wyble, Department of Psychology, Western Connecticut State University, 181 White Street, Danbury, CT 06810. Email: *wyble001@connect.wcsu.edu.* This research was conducted under the supervision of Patricia O'Neill, Ph.D.

adolescents and adults. If a student has a negative school experience throughout high school, that negative experience may affect that student later in life. School bullying was found to cause wide-ranging, long-term effects for students, producing anxiety, shame, and similar difficulties for those same students as adults (Carlisle & Rofes, 2007). The negative long-term effects of school bullying were found to be similar to those of child abuse (Carlisle & Rofes, 2007). With positive school support, adolescents may experience a decrease in mental and social issues, enabling them to better succeed and grow during their adult years.

Mohanty (2014) used a longitudinal survey study to see what factors determine happiness and whether or not income was the leading factor in happiness. Participants from three different age groups answered questions related to income, happiness, career, home ownership, health conditions, and family. Mohanty (2014) found that a positive attitude was the strongest factor associated with happiness. Focusing on positive attitudes to help with mental health issues may result in long-term happiness in an individual's future.

Gender roles and stereotypes may impact views of mental health and seeking mental health support. According to a study by Sánchez, Bocklandt, and Vilain (2013), heterosexual men sought less help and emphasized masculine norms when asked about attitudes towards psychological help. Social environments influenced the men's behaviors and attitudes towards masculine stereotypes, which include not showing pain and being independent. This can harm men's mental health (Sánchez et al., 2013). Addis and Mahalik (2003) proposed five key social-psychological processes to better understand men with depression and their influences on seeking professional mental health support. The processes that a man with depression goes through are the normativeness of his depression, the significance of depression to his identity, the availability to seek help, how others react when or if he seeks help, and his perception of loss of control if he were to get help (Addis & Mahalik, 2003). Men greatly focus on their gender stereotypes and society's reaction to their mental illness, and therefore do not get the mental health support that they might need. However, women are likely to not receive help as well. According to a study by Johnson-Agbakwu, Allen, Nizigiyimana, Ramirez, and Hollifield (2014), posttraumatic stress disorder, anxiety, and depression were common among refugee women. Among the 26 women that were interviewed, 50% received mental health support or had appointments scheduled. However, the other 50% did not receive mental health support due to declining the services or having a lack of insurance (Johnson-Agbakwu et al., 2014). Gender roles may have an impact on whether or not individuals receive or seek mental health help. However, screening all individuals at an early age may reduce gender stereotypes in male adults by making those individuals more comfortable with expressing their mental health.

The present experiment examined young adult students' gender and knowledge of mental health services during high school and their happiness during and after high school. The relationships between existence of mental health support in high school, the scale of happiness and health in high school, and happiness in present day were examined. This experiment investigated whether the lack of mental health services during adolescent years had a negative impact on health later in young adulthood. The independent variables were gender (male, female, or other) and the level of needed mental health support during high school (whether participants got support or did not get support). The dependent variable was the level of happiness during the present day. The hypothesis was that young adult females got more mental support during high school and have higher current happiness levels than young adult males. It was also hypothesized that the participants who got mental health support during high school also have higher happiness levels in the present day than in high school.

Method

Participants

Forty-four undergraduate students were recruited from a public northeastern university. Twenty-six of these students were female, and 18 were male. Eight students were 18 years old, six students were 19 years old, seven students were 20 years old, nine students were 21 years old, and 14 students were 22 years or older. They received partial course credit or extra credit when applicable.

Materials

The undergraduate students took a paper-and-pencil survey in a quiet room. They were asked questions and given statements about several topics that were divided into four sections. The first section displayed 25 statements pertaining to the participants' high school experiences. The following topics for the first section were represented with five statements each: academics, social life, emotional well-being, time management, and physical well-being (see Appendix A). The second section displayed 25 statements pertaining to their happiness and well-being during the present day. Some questions were taken from the Oxford Happiness Questionnaire (Hills & Argyle, 2002) for only this section of the survey. The topics for these statements were happiness, life satisfaction, and well-being (see Appendix B). The third section displayed 15 statements pertaining to the participants' knowledge about the mental health services provided during their time at high school and whether they received mental health support or not. The following topics for the third section were represented with five statements each: mental and physical wellness, mental health services known and received, and known sources for consultation (see Appendix C). The fourth section asked questions about the participant's gender, age, and years they attended high school to see if there was any further variation (see Appendix D).

Procedure

Each participant received a letter of informed consent to read and sign. Then the participant began the first part of the survey

and read 25 statements pertaining to their happiness level during high school. They indicated the extent to which they agreed with each statement on a scale of 1-5, a "1" represented "strongly disagree" while a "5" was "strongly agree" (see Appendix A). The second part of the survey included 25 new questions pertaining to their present day happiness level. They rated each statement along the same scale as the first 25 items (see Appendix B). The third component of the survey consisted of 15 statements about awareness of mental health support received or advertised during their high school years (see Appendix C). They answered either "true", "not sure", or "false" for each statement. The fourth part of the survey asked each participant to state their gender, their age, and the years they attended high school (Appendix D). They were thanked for their participation.

Results

According to this data, more male participants (n = 7) received mental health support than female participants (n = 2). On average, the female participants had higher happiness levels during high school (M = 3.50) and higher current happiness levels (M = 3.57) than the male participants' happiness levels during high school (M = 3.24) and current happiness levels (M = 3.42). However, according to a two-way ANOVA test, gender and level of support did not have a significant effect on happiness levels during high school (F (3, 40) = 1.395, $p > 0.05$) and later happiness levels (F (3, 40) = 2.175), $p > 0.05$). Thirty-four participants knew of the mental health services provided in their high school, four participants did not know of the services provided, and six participants were not sure if services were provided. Thirty participants said they had a psychologist in their high school, three participants said they did not have a psychologist, and 11 participants were not sure if they had a psychologist. Twenty-four participants answered they were spoken to about mental health services available to them, 13 participants answered they were not spoken to about mental health services, and seven participants were not sure if they were spoken to about mental health services. A multiple regression showed that happiness levels during high school (M = 3.51, SD = 0.68) were good predictors of current happiness levels (M = 3.39, SD = 0.68), F (2, 41) = 13.843, $p < 0.05$, $R^2 = 0.403$. The participants' high school happiness level was a significant predictor (ß = 0.63, t (41) = 5.14, $p < 0.05$), but level of support was not a significant predictor (ß = 0.04, t (41) = 0.29, $p > 0.05$). According to a correlation test, there is a positive relationship between the participants' happiness level in high school (M = 3.39, SD = 0.68) and current happiness level (M = 3.51, SD = 0.68), r (42) = 0.63, $p < 0.05$.

According to this study, there was no significant relationship between the participants' happiness level during high school and support level, r (42) = 0.16, $p > 0.05$. There was also no significant relationship between the participants' current happiness level and support level, r (42) = 0.14, $p > 0.05$. Age was a significant factor in some correlations between the participants' happiness level during high school and their current happiness level. Eighteen-year-old participants had no significant correlation between their happiness levels during high school and their current happiness levels, r (6) = 0.38, $p > 0.05$. Nineteen-year-old participants had a significant correlation between their happiness levels during high school (M = 3.23, SD = 0.84) and their current happiness levels (M = 3.17, SD =0.89), r (4) = 0.82, $p < 0.05$. Twenty-year-old participants had a significant correlation between their happiness levels during high school (M = 3.34, SD = 0.59) and their current happiness levels (M = 3.45, SD = 0.80), r (5) = 0.99, $p < 0.05$. Twenty-one-year-old participants had no significant correlation between their happiness levels during high school and their current happiness levels, r (7) = 0.42, $p > 0.05$. Twenty-two-year-old and older participants had a significant correlation between their happiness levels during high school (M = 3.41, SD = 0.80) and their current happiness levels (M = 3.72, SD = 0.65), r (12) = 0.60, $p < 0.05$.

Discussion

The female participants did not receive more mental health support than the male participants. However, females had an overall higher average level of happiness during high school and during the present time than males. Both females and males' mental health support during high school did not affect their current happiness levels compared to their happiness levels during high school. However, participants' level of happiness during high school was a good predictor of their level of happiness later in life as young adults. Happiness levels in high school of participants ages 18 and 21 did not correlate with their current happiness levels. Happiness levels in high school of participants' ages 19, 20, and 22 and older did correlate with their current happiness levels. This means that age was a significant factor of happiness levels.

These results supported the biopsychosocial model; many questions in the survey had mental, physical, and social wellness questions. Participants who had lower happiness scores tended to score lower scores on their social and mental health more than their physical health, which demonstrated that social factors and psychological factors were related to overall well-being and happiness.

These results were not consistent with the research by Nunes et al. (2014), which found that a small majority of colleges and universities covered mental health treatments. The majority of the participants in my study answered that there were mental health services and a psychologist available to them, and that they were notified of these services. However, the participants in my study were relating their knowledge back to high school mental health support, not college or university support. This study was not relevant to Cappella et al.'s (2012) study, as this survey did not ask specifically about positive classroom experiences or interactions. This study was also not relevant to Carlisle and Rofes' (2007) study, as this survey did not ask specifically about whether or not the participants were bullied in high school. However, classroom experiences and school bullying could have been hidden factors in each participant that may have influenced

each participant's answers on the survey. This influence, in turn, may have influenced participants' happiness levels during high school.

This study and Mohanty's (2014) study both asked participants questions pertaining to happiness, health conditions, family, and career. This study did not target only one factor of happiness as it was more targeted towards mental health support level. However, participants who had the higher happiness levels during high school and current happiness levels may have positive attitudes influencing their happiness levels.

The women in Johnson-Agbakwu et al.'s (2014) study either declined mental health support or did not have the insurance for it. Many women in this study had higher happiness scores during high school and after high school; therefore, it is possible they did not have mental health issues and would not have needed mental health support. In this study, where more men than women received mental health support, male stereotypes and masculine norms mentioned in Sánchez et al.'s (2013) experiment and the psychological processes mentioned in Addis and Mahalik's (2003) study may have not applied to the male participants. This study suggested that men might not have a self-stigma towards mental health, meaning they were not embarrassed or ashamed to admit they need help. Furthermore, it also suggested that females may have a stronger self-stigma, since they did not seek as much mental health support as men. Media could also be a factor on how individuals perceive mental health services. According to Maier, Gentile, Vogel, and Kaplan (2014), self-stigma of mental health issues developed through the way the stigmatized group is represented in the media. Maier et al. (2014) found that media influences perceptions of psychologists, therapy, and people with mental health issues in real life. It is possible that media affects women more than men when it comes to attaching a stigma to mental health.

Limitations in this study might have altered participants' answers and these results. The survey questions confused a few participants as they were taking the survey. Some participants asked questions about the wording on some statements, such as the statement, "I am intensely interested in other people" (see Appendix B). Some participants were confused by the question that asks the years in which they attended high school, either asking the year they started high school if they graduated in a certain year or only wrote down the number of years attended. Another limitation was the format of the study itself. The study consisted of a paper and pencil survey with closed-ended questions. The participants could have easily put down false answers to the statements due to the limitation of the answers they could give. Participants could have also given false answers due to self-stigma and the attached stigma that is present in society about mental health issues and support. They may have been too embarrassed to answer if they were distraught in high school or needed mental health support. The inconsistency of age of the participants may have altered these results as well. The age range for this study was 18-40, with the average age being 21. The majority of participants left high school a few years earlier than this study; this might result in participants not remembering their high school experience as well. This may alter their perception of their happiness level during high school. The age of the participants may be a confounding variable. The age differences between the participants were minimal, which may have confounded the correlations between happiness levels during high school and current happiness levels of the participants.

Future studies should consider several changes. First, the study would include a different format for finding the happiness levels of each participant, whether it is rewording the statements for a paper and pencil survey, including open-ended questions in the survey, or doing a test on Superlab. Second, the study would also include a wide arrange of ages, and would not be limited to college students. Adolescents currently in high school, young adults in college, and older adults would be accounted for. It would be ideal to get a wider range of ages to get more accurate data. Obtaining a wider range would eliminate some confounding variables that affect the happiness levels of the participants.

Adolescent and young adults may not get the mental health services they need due to lack of knowledge, lack of services, or stigmatization to mental health issues. These individuals may experience these mental issues later in life, where it is harder to prevent and treat. This study investigated individuals' happiness levels during their adolescent years compared to the happiness levels in the present day, along with an investigation of their knowledge and use of mental health services. The results suggested that the level of happiness during adolescence will predict how happy that same individual is during their young adult life, and possibly their older adult life. This promotes the importance of certain factors that affect happiness and well-being, the importance of mental health, and the importance of helping oneself.

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Appendix A

First Section of the Survey

For each for statement, circle according to the scale, "1" being "strongly disagree" to "5" being "strongly agree", that you feel is most accurate in describing you during your high school days. Your answers will be kept confidential.

Statement

1. I did well academically most of the time.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

2. Sometimes I was not very motivated to do my homework.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

3. Most of the time I had a large social group that I hung out with.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

4. Sometimes I felt sad or depressed.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

5. I was physically healthy through most of my years of high school.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

6. Sometimes I felt like I had no time for anything.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

7. I had great relationships with most of my teachers.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

8. I was very busy with hobbies, sports, schoolwork, etc. throughout high school.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

9. I had a healthy, well-balanced diet.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

10. I was very stressed out.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

11. I laughed a lot during high school.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

12. I was very active in extracurricular activities during high school.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

13. I was not very pleased with my appearance during high school.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

14. I was very satisfied with my life.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

15. I preferred to keep to myself.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

16. I kept a good sleep schedule throughout my high school years.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

17. I was a talkative student in my classes.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

18. I made smart decisions for myself.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

19. I was emotional sometimes.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

20. My years in high school proved to be very rewarding.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

21. I was exhausted through most of my time in high school.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

22. I was happy throughout my years in high school.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

23. I felt very alone during my years in high school.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

24. I did not receive any disciplinary actions during high school.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

25. My relationship with my parents was positive most of the time.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

Appendix B

Second Part of the Survey

For each for statement, circle according to the scale, “1” being “strongly disagree” to “5” being “strongly agree”, that you feel is most accurate in describing you during the present day. Your answers will be kept confidential.

Statement

1. I don’t feel particularly pleased with the way I am.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

2. I get mentally exhausted easily.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

3. I feel that life is very rewarding.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

4. I have very warm feelings towards almost everyone.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

5. I rarely wake up feeling rested.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

6. I am not particularly optimistic about the future.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

7. I do not get emotional over small situations.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

8. I am always committed and involved.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

9. Life is good.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

10. I do not think that the world is a good place.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

11. I laugh a lot.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

12. I am well satisfied about everything in my life.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

13. I don’t think I look attractive.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

14. There is a gap between what I would like to do and what I have done.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

15. I am very happy.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

16. I get stressed out very easily.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

17. I keep to myself a lot and like to be alone.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

18. I don’t think I am successful as I could have been in my life.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

19. I feel depressed.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

20. I get physically sick often.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

21. I find most things amusing.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

22. I am intensely interested in other people.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

23. People listen to hear what I have to say about an important situation or idea.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

24. College life has been very hard for me to handle.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

25. I have a very active social life.

1	2	3	4	5
Strongly disagree	Slightly disagree	Not sure	Slightly agree	Strongly agree

Appendix C

Third Part of the Survey

Please circle “True”, “False”, or “Not sure” to describe your best knowledge towards each statement given when you were in high school. Your answers will be kept confidential.

Statement

1. I was mentally healthy most of the time.

True Not sure False

2. I received mental health support during high school.

True Not sure False

3. I had social support during high school.

True Not sure False

4. I was aware of the mental health services that were provided at my school.

True Not sure False

5. I only talked to my friends and families about mental issues or situations I was going through during high school.

True Not sure False

6. There was nobody I could turn to to discuss any problems or issues I had.

True Not sure False

7. There was a psychologist at my high school.

True Not sure False

8. I was physically healthy most of the time.

True Not sure False

9. I went to my teacher about problems or issues I had.

True Not sure False

10. I did not talk to anyone about my stressors.

True Not sure False

11. Someone talked to me about the services available to me at my high school.

True Not sure False

12. I was not emotionally well.

True Not sure False

13. I was very anxious in high school.

True Not sure False

14. I did not receive mental health support during high school.

True Not sure False

15. I felt pressured to do well during high school.

True Not sure False

Appendix D

Fourth Part of the Survey

Please answer the following.

What is your gender? Please circle one.

Male Female Other

What is your age? _____

What years did you attend high school? _____

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Statement of Purpose

The *Journal of Undergraduate Psychological Research* was created to serve two primary purposes: to give WCSU undergraduate students an outlet in which to publish original psychological research and to provide undergraduate authors the opportunity to learn firsthand about the manuscript submission and publication process. The WCSU Psychology Department wanted to encourage student-led research and to reward outstanding individuals for their quality efforts. In addition, undergraduates serving as editors and/or reviewers may gain valuable insight into and personal experience with the management of a scholarly journal. Finally, the published journal serves as a pedagogical tool for students enrolled in and faculty teaching WCSU psychology courses.

Editorial Policy

JUPR publishes manuscripts from current and former undergraduate WCSU students who are the principal investigators for research conducted under the auspices of the WCSU Psychology Department. The sophistication of the hypotheses, complexity of design, level of statistical analysis, and theoretical underpinning should be appropriate for undergraduates with moderate to advanced classroom statistical and methodological experience.

Instructions for Contributors

Manuscripts submitted for publication in *JUPR* should conform to the following:

1. Report original research not published elsewhere.

2. Adhere to the Publication Manual of the American Psychological Association (6th Ed.).

3. Include a completed and signed Manuscript Preparation. Checklist (available at the address below), which includes acknowledgement that the research adhered to the ethical standards of the American Psychological Association and was approved by the WCSU Institutional Review Board.

4. Include name, mailing address, email address, and phone number for the first author.

Submissions will be accepted through December 18, 2015.

Manuscripts should be submitted to:

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c/o Journal of Undergraduate Psychological Research
Department of Psychology
Western Connecticut State University
181 White Street
Danbury, CT 06810

Questions about deadlines, manuscript review, publication status, and related matters should be addressed to Dr. Bernard Gee via e-mail: geeb@wcsu.edu.

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