

Cognitive Abilities

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Cognitive abilities is a quasi-experimental study that is looking at the memory attainment ability for men and women. Specifically, towards gender stereotypical information. We are wanting to look at if men are able to remember and recall more information when the information happens to be more male stereotypical. Same for women, if they are able to remember and recall more information when the information is more female stereotypical. These are our initial focus points, however, with this we can also look to see which gender, men, or women, has the better memory when it comes to more gender-neutral information. With this study we are able to gain more insight into how the brain works for men and women and if the information being presented plays a part in how the brain works. In other words, if the brain is more engaged and therefore remembers more information when it comes to gender stereotypical information. In collecting this data, we could understand more of why men and women think and remember things differently. While this study may not be groundbreaking, this study is informative and can help understand more about the human brain and memory differences between men and women.

There has been similar research conducted looking into memory differences between men and women. Loprinzi and Frith (2018) investigated the memory differences between men and women under multiple circumstances. They also evaluate sex-specific exercise on memory performance. They express how “In both cross-sectional and longitudinal designs, females tend to outperform males in episodic memory function, with a steeper age-associated decline among males (p.1). They then go on to discuss how women have a better memory when it comes to verbal-based episodic memory than men, compared to spatial-based memory tasks. Also stated is that “Females generally access their memories faster than males, date them more precisely, and

use more emotional terms when describing memories (pp. 1-2). The researchers also discuss how women are more likely to remember a woman's face compared to a men's face. Their reasoning behind this is that women are able to remember more female faces because they are more familiar to them, and they are more likely to have slight similarities. In general, "females outperform males on autobiographical memory (particularly with high retrieval support via verbal probing), random word recall, story recall, auditory episodic memory, semantic memory (driven by superiority in fluency), and face recognition tasks" (p. 2). They then go on to discuss possible explanations for these memory differences between men and women. "For example, some work suggests that, for emotional memories, right hemispheric amygdala activity is associated with long-term memory retention for males, whereas activity of left hemispheric amygdala activity is associated with long-term memories for females" (p. 3). Overall, this article suggests that women have a better overall memory compared to men and investigate why this may be.

In an additional study done by Loftus and colleagues (1987) they examine the differences in memory that take place when it comes to interest, motivation, and possible training in some areas that are being asked to memorize. They suggest that not one gender should outperform the other in all aspects of the memory. They presented participants with a survey which consisted of several memory situations. The participants were then asked to predict who they believed would have the better memory, men, women, or if they would be the same. If the participants said that either men or women would have the better memory in the situation, they were then asked to state how far apart they believed that the other sex would fall behind. In other words, state how much of a difference there would be between the two. The researchers hypothesized that "men's and women's beliefs about sex differences in memory may reflect empirically observed

differences” (p. 66). Though this was their main hypothesis, while conducting the research they also kept these other two hypotheses in mind. First that, “men's and women's relative memory ability would depend on the specific type of memory in question” then second, “that these differences would be predicted, at least to some degree, by men's and women's beliefs about gender differences” (p. 66). When a situation came down to having to use verbal memory, most participants stated that there would be no difference, however the participants that did choose between either men or women, they noticed that women were then the favorable option over men. When the memory situation was in reference to spatial information, men were then chosen over women to have a better memory in this category. In conclusion this study “suggests that neither sex can be said to have a better memory per se; rather the two sexes differ in terms of what type of information they remember best (p.82). Similar to the previous study men and women had their different strengths and weaknesses when it came to examining memory performance.

In relation to the previous research discussed, similar findings are found in another study done by Baer and colleagues (2006). These researchers presented their participants with a sheet of paper with a variety of images on the page. The images consisted of ten images that were male stereotyped and 10 images that were female stereotyped and then 10 images that were neutral in stereotype, resulting in a variety of 30 images. They then gave the participants one minute to look over the page and memorize as many pictures as possible. After the minute was up the participants flipped the page over and then were given two minutes to write down as many items as they could remember that were on the page. The researchers hypothesized that “males and females should recall more stimuli that are stereotypically consistent with their gender” (12). The results of the study suggest that there is a difference between men and women when it comes to

recalling objects. The study states that “Overall, females recalled significantly more feminine and neutral items than males. Males and females performed equally well in the recall of masculine items” (p. 13). With these findings, their hypothesis is only partially supported. While women did outperform men in recalling female stereotype items men failed to outperform women when it came down to male stereotype items. Within this study it has been learned that men and women respond differently to various types of stimuli. Some reasons for these findings having taken place could potentially be due to how the images were presented on the page. For example, the ones at the top may have been remembered more than the ones at the bottom due to our natural reading abilities. Overall, this study has helped to provide more information on men and women and the differences in their memory ability to recall images during a short period of time.

The prediction of this quasi-experimental study, which looks at men and women and their ability to recall gender stereotypical statements, is that men will be able to recall more statements that are male stereotypical, and women will be able to remember more statements that are more female stereotypical. We also predicted that women will be able to recall more of the gender-neutral statements, which some could argue that leaves women with an overall better memory compared to men. We predicted this because when simply reading multiple statements at a time it can become easy to forget what some of the statements were about. Unless the statements stuck out to one’s brain because of a particular interest. For example, a woman reading the statement “Sarah went shoe shopping with her mom” may have a certain activity in her brain that activates interest because she likes to go shoe shopping with her mom. Then later, when asked if she has seen that statement before she is likely to remember that statement because she was able to relate to it and therefore, she remembered. The same idea goes for men and their interests.

Method

Participants

Participants in the study consist of 72.2% women and 27.8% men, for a total of 36 participants. From these 36 participants there are, 38.9% White or European, 41.7% Hispanic or Latino, 11.1% African American, 5.6% Asian or Pacific Islander, and 2.8% Bi-racial. The ages of the participants ranged from 18 to 24 ($M = 19.22$, $SD = 1.36$). Participants were recruited from an online software program at Angelo State University called Sona Systems.

Design

Cognitive Abilities is a study that would fall under the category of a quasi-experimental study. This is due to the fact that there is not a true independent variable, because we cannot randomly assign participants to be either men or women. Therefore, the study cannot be completely experimental. Within this study we have a categorical independent variable, participants sex, as well as a categorical dependent variable, participants memory.

Measures

The questionnaire presented to the participants consisted of asking the participants to read a series of sentences, followed by another series of sentences, and asked if they are able to remember if the sentences are the same or different from the previously presented sentences. With this, the survey was designed to examine if men recall more male stereotypical statements compared to women and vice versa regarding women. The survey was created specifically for this study and has not been used in previous studies. The participants were initially presented with 10 simple sentences and then 10 more and then asked to state whether they believe they are the same or different, so a total of 20 sentences and 10 actual questions, where their answer was either the same or different. An example of a sentence from the first 10 sentences is *Sally works*

in her garden on a beautiful Saturday afternoon, then for the second set of 10 sentences the sentence read *Sally works in her yard on a beautiful afternoon* this time they were asked to identify if the sentences were the *same or different*. Another example of a sentence would be *George goes to a hockey game with his friends*, then for the second set of 10 questions the sentence read *George goes to a soccer game with his friends* this time they were asked to identify if the sentences were the *same or different*. At the end of the survey, the participants were asked 3 demographic questions. These questions were in relation to the participants' race, age, and sex. The demographic questions were used to help describe our sample.

Procedure

Our study was presented online using Qualtrics and our participants were students from Angelo State University enrolled in psychology classes and recruited via Sona. They received .5 Sona credits that they were able to apply to one of their psychology courses either to satisfy a course requirement or for extra credit. At the beginning of the study participants were presented with a consent form that gave them information about our study. After reading the consent form if they agreed to participate, they clicked agree. If they did not, then the program skipped them to the end of the survey. Once they agreed to participate, they were presented with our survey, followed by the demographic questions, and then at the end they were presented with our debriefing. Our debriefing form included the general aim of our research, whether it was a descriptive, correlational, or experimental study, where they can find more information relating to our study, and lastly our faculty member supervisor. After that, their participation was complete.

Results

I predicted that there would be a significant difference in memory recall between men and women in relation to specific gender stereotypical statements. To test my hypothesis, I used a Chi-square analysis test. When examining the results, the statements reviewed were sectioned off into three female statements and three male statements. Female statement #1 showed no significant difference ($p = .219$) when it came to women recalling the statement more times than males ($M = .39, SD = .50$). Female statement #2 also showed no significant difference ($p = 1.0$) when it came to women recalling the statement more times than men ($M = .64, SD = .49$). For the last female statement, female statement # 3, there was again no significant difference ($p = .645$) when it came to women recalling the statement more times than men ($M = .89, SD = .32$). The results were as follows for the male statements. For the male statement #1 there appeared to be no significant difference ($p = .895$) when it came to men recalling the statement more than women ($M = .67, SD = .48$). In the male statement # 2 there was also no significant difference ($p = .562$) when it came to men recalling the statement more than women ($M = .47, SD = .51$). Lastly, for male statement #3 there again was no significant difference ($p = .39$) when it came to men recalling the statement more than women ($M = .75, SD = .44$). Unfortunately, with these results there was overall no significant data to support that there is a difference in memory recall between men and women in relation to specific gender stereotypical statements.

Discussion

Cognitive Abilities was a study that looked at examining memory differences between men and women. The hypothesis of the study was that men would be able to recall more statements that were male stereotypical, and women would be able to recall more statements that were female stereotypical. Unfortunately, our hypothesis was not supported by the results of our study. When broken into three male statements and three female statements, it was expected that

for the male statement's men would recall more of them than women. The same concept applies for the three female statements, it was expected that women would recall more of these statements than men. However, none of the three male statements found a significant difference between the number of men and women who were able to recall these statements. Same goes for the female statements, there was no significant difference between the number of men and women who were able to recall these statements. These results could have happened for a number of reasons. This could have been due to our small sample size, perhaps a larger sample size would have a different outcome. This also could have something to do with our survey. We could have conducted the survey with greater differences in the second set of questions or even given them more statements to read and recall. When compared to previous research done by Baer and colleagues (2006) they found a significant difference between men and women when recalling feminine items. When also looking at research done by Loprinzi and Frith (2018) they state that "there is clear evidence that sex differences across various memory types are apparent" (p. 4). Because previous research found either significant differences or that differences were apparent, we can assume that our insignificant data came from somewhere within our study.

There are some limitations within the study of Cognitive Abilities. One of the limitations being that participants were recruited only from Angelo State University students who were enrolled in psychology courses. If done again, this study could potentially be sent to another university for more of a diverse population. The study could also expand those recruited at Angelo State, perhaps from different majors. Making this change is important, because this will allow for our study to be more generalizable by gathering information from more of a broad population instead of one that is restricted to one university and one major within that one university. Another limitation of this study would be our sample size. If the study were to be

done again, there could be a larger number of participants recruited before the data are calculated. This change is important because with a larger sample size our data is able to be more accurate than when only looking at a smaller sample size. The larger our sample size the more accurate our data will turn out to be. Future research should try to explore further into the differences between men and women's memory abilities. This can be done by looking into different types of memory tests, to see if one gender has a significantly better memory than the other in a specific memory test.

Researching the difference between men and women's memory abilities is valuable because this can allow us to better understand men and women and how their brain works. Though this study, cognitive abilities, did not find any significant difference in memory ability when it came to if men and women are able to recall more statements if they are stereotypical to their gender is still a finding within itself. This can still contribute to research on differences between men and women and their memory abilities, or rather research to support that there is no difference.

Cognitive Abilities is a study that investigated the difference between men and women and their memory abilities, specifically if men would be able to recall more statements that were male stereotypical and vice versa for women. Though the study's findings were insignificant, this does not mean that there is no difference between men and women's memory abilities. This study focused on one of many ways in which men and women's memory can differ. There are still many out there waiting to be examined. Looking into the differences between men and women's memory abilities is intriguing because there are many aspects of the brain that are still unknown. By conducting these studies, we are slowly able to uncover more and more leading to interesting findings. Maybe one day the human brain will not be so much of a mystery.

References

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