

Fall 2021

## Confirmation Bias Susceptibility: Social Domains, Metacognitive Self, and Gender

Emily N. Roush  
*Gettysburg College*

Follow this and additional works at: [https://cupola.gettysburg.edu/student\\_scholarship](https://cupola.gettysburg.edu/student_scholarship)



Part of the [Feminist, Gender, and Sexuality Studies Commons](#), [Industrial and Organizational Psychology Commons](#), and the [Management Sciences and Quantitative Methods Commons](#)

**Share feedback about the accessibility of this item.**

---

### Recommended Citation

Roush, Emily N., "Confirmation Bias Susceptibility: Social Domains, Metacognitive Self, and Gender" (2021). *Student Publications*. 939.

[https://cupola.gettysburg.edu/student\\_scholarship/939](https://cupola.gettysburg.edu/student_scholarship/939)

This open access student research paper is brought to you by The Cupola: Scholarship at Gettysburg College. It has been accepted for inclusion by an authorized administrator of The Cupola. For more information, please contact [cupola@gettysburg.edu](mailto:cupola@gettysburg.edu).

---

# Confirmation Bias Susceptibility: Social Domains, Metacognitive Self, and Gender

## Abstract

Confirmation bias is a daily and commonly under-recognized cognitive bias, one in which requires more research. More specifically, confirmation bias is when individuals seek out information to confirm beliefs and reject opposing views. This phenomenon is readily studied in economics and psychology to name a few. However, confirmation bias is often neglected in an empirical setting. Thus, with a gap in the literature, this study tested the susceptibility of confirmation bias in college students, and utilized social domains, Metacognitive Self Score (MCS), and gender to predict the level of confirmation bias. Using a between-subjects design, participants were randomly assigned to a community treatment or a competence treatment. The participants completed an online survey consisting of three parts that aimed to measure the confirmation bias, MCS, and demographic information. The participants in the competence treatment showed stronger confirmation bias, while the influence of MCS scores did not differ across the two domains. The hypotheses that females would show more confirmation bias in the competence domain and males would show more confirmation bias in the community domain were not supported. The overall results show important takeaways and implications regarding the confirmation bias in organizational settings.

## Keywords

confirmation bias, social domain, gender, metacognitive self-score

## Disciplines

Business | Feminist, Gender, and Sexuality Studies | Industrial and Organizational Psychology | Management Sciences and Quantitative Methods

## Comments

Written for OMS 405: Irrational Behavior

## Creative Commons License



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

**Confirmation Bias Susceptibility: Social Domains, Metacognitive Self, and Gender**

Emily Roush

Gettysburg College

OMS 405 B: Irrational Behavior

Dr. Maras

December 11, 2020

## Abstract

Confirmation bias is a daily and commonly under-recognized cognitive bias, one in which requires more research. More specifically, confirmation bias is when individuals seek out information to confirm beliefs and reject opposing views. This phenomenon is readily studied in economics and psychology to name a few. However, confirmation bias is often neglected in an empirical setting. Thus, with a gap in the literature, this study tested the susceptibility of confirmation bias in college students, and utilized social domains, Metacognitive Self Score (MCS), and gender to predict the level of confirmation bias. Using a between-subjects design, participants were randomly assigned to a community treatment or a competence treatment. The participants completed an online survey consisting of three parts that aimed to measure the confirmation bias, MCS, and demographic information. The participants in the competence treatment showed stronger confirmation bias, while the influence of MCS scores did not differ across the two domains. The hypotheses that females would show more confirmation bias in the competence domain and males would show more confirmation bias in the community domain were not supported. The overall results show important takeaways and implications regarding the confirmation bias in organizational settings.

*Keywords:* confirmation bias, social domain, metacognitive self-score

## **Confirmation Bias Susceptibility: Social Domains, Metacognitive Self, and Gender**

### **Introduction**

Confirmation bias is a cognitive bias enacted when an individual selects to only account for belief inconsistent information, while dismissing belief inconsistent information (Rajsic, 2015). Thus, individuals will put more weight in what they agree with over contradictory information they disagree with. This cognitive bias I just described is a common bias (Brycz, 2014), one of which tends to get overlooked in the decision making and behavioral process. Confirmation bias illustrates bounded rationality, in that humans often fail to this cognitive bias in various guises (Nickerson, 1998). Bounded rationality is a phenomenon that illustrates how humans are prone to error and have trouble processing information for various reasons (Kahneman, 1973; Simon, 1955). Therefore, confirmation bias is one cognitive bias that illustrates how humans are irrational and are likely to make mistakes. Nickerson (1998) highlights real life examples of number mysticism, witch hunting, and policy rationalization, to name a few. He proposes explanations of this phenomenon that people have the desire to believe, people want to appear consistent, people reflect their reference groups, people struggle with conditional reference frames, people fail to pragmatism, and people struggle with educational effects. Confirmation bias is ingrained in everyday life, without most people thinking twice about its impact on decisions, opinions, and behaviors. Moreover, that is why I wanted to research confirmation bias and study how it does have an effect on people. It is crucial to be aware of biases, especially ones that are overlooked. Confirmation bias is applicable to all people, in all fields, impacting the way people process information, whether it be consciously or subconsciously. The bias is something people need to be more cognizant of, rather than being complicit to. Confirmation bias has not been at the forefront of cognitive bias studies and needs

more empirical research. Furthermore, I aim to continue to build on the literature, bring awareness to confirmation bias, illustrate the results of past research, and introduce my study.

### **Past Literature**

Confirmation bias has been studied theoretically and empirically within many fields; some of which include psychology, economics, sociology, and neurology (Allahverdyan and Galystyan, 2014). Many researchers point out that psychology seems to be the dominating discipline researching confirmation bias (see Nickerson, 1998; Allahverdyan and Galystyan, 2014). One particular researcher, Nickerson (1998), led identifying and determining the theoretical underpinnings and explanations for confirmation bias. His research was foundational to illustrating confirmation bias, in which other researchers went on to study.

There have been researchers that framed their research on confirmation bias around belief systems. Quinn (2015) pursued to exemplify how astrology enacted confirmation bias in many people, which was a strong example of pseudoscience. Although this research was just exploratory, it institutes a connection between confirmation bias and what people choose to believe in. Other researchers assessed how confirmation bias was impacted by social domains (see Brycz, Wyszomirska-Góra, Bar-Tal, and Wiśniewski, 2014; Allahverdyan and Galstyan, 2014; Pilditch and Custers 2018). These researchers found that social settings, social norms, and social domains have an impact on confirmation bias because individuals want to preserve self-concept. The research illustrated that individuals are more aware and more intentional to maintain beliefs in a public setting, to appear consistent, rather than during an individual basis. Beyond the social factor, our heavily technology reliant world calls to look into how the online setting impacts confirmation bias. Various researchers have dedicated their research to study group polarization, online dynamics, controversial topics (i.e. politics, health literacy, etc.)

impact confirmation bias (see Del Vicario, Scala, Caldarelli, Stanley, and Quattrociocch, 2017; Knobloch-Westerwick, Mothes, and Polavin, 2020; Meppelink, Smit, Fransen, and Diviani, 2019). The most prominent consensus was that people tend to seek out confirmatory information, reiterating the importance of social domains in an online setting.

Another major area of study was amongst internal and external individual differences causing various levels of confirmation bias. Bradley, Hutchison, and Frank (2011) and Rajsic, Wilson, and Pratt (2015) each focus on a cognitive approach with behavioral tasks (i.e. DNA and visual selection). The cognitive processes showed some differences, but require more research to truly determinan these relationships with confirmation bias. The research on external factors causing confirmation bias dealt more with socialization and learning. Traut-Mattausch, Jonas, Frey, and Zanna (2011) studied the gender differences, whereas Palminteri, Lefebvre, Kilford, and Blakemore (2017) focused on learning styles. Each of these external stimuli posed as a source for some difference, but there is more ambiguity to the results. The external sources pose as a challenge with possible extraneous variables at play.

Lastly, I looked into how confirmation bias plays a role in application to the management field. The most relevant research on management and confirmation bias were on the topics of advertising, mergers and acquisitions, and workplace happiness. Bagchi, Ham, and He (2020) showed an effect between confirmation bias and beneficial advertising profits on a long term basis. Bogan and Just (2009) found that confirmation bias is one of many biases causing misguided merger decision making. Williams, Kern, and Waters (2016) studied work happiness, finding that there was some relationship between selective exposure, workplace happiness, and confirmation bias. These studies show more niche examples of confirmation applied to the business discipline.

The literature suggests that there is an effect of confirmation bias in various guises, behaviorally, socially, and cognitively (Nickerson, 1998). The major takeaways were the power of the online setting, the power of belief systems, and the power of social domains. Each of these facets play a large role and act as a catalytic agent for confirmation bias. The internet is a platform where people will believe the first thing they read if they agree with it. Belief systems are powerful and hard to change, due to the years it takes to form a core belief. Social settings and reference groups have an effect over others. Who you surround yourself, what they believe, and how they support that belief is telling. People tend to surround themselves with those who agree with them, as it is inherently human to avoid confrontation and seek out comfort. In sum, there is not one specific scenario that confirmation bias is always present, rather this bias has an unassuming nature. Despite that, confirmation bias beckons attention, awareness, and recognition. Confirmation bias has nuance that is difficult to quantify and qualify. Confirmation bias is challenging to grasp into words, capture in behavior, and measure. Confirmation bias needs more experimental research, rather than even more psychological research. There is a gap in the sociological and neurological disciplines that warrant further research. The common methodologies tend to be quasi-experimental, lab, and survey, with gaps in cross-sectional, longitudinal, and qualitative research. Larger sample sizes, controls and empirical observations are all future steps to take in filling the gaps.

Therefore, I utilized the past literature and aimed to further the research on a cognitive bias that still needs more attention and observations. I specifically wanted to hone in on social domains and the effect they have on confirmation bias. Social domains in past literature have shown results, but not a niche focus on young adult, college students. Young adults, decision making, and biases are all very interconnected with social domains and reference groups. My

research questions are the following: 1. How does the social domain impact the likelihood of confirmation bias? Does community or competence affect an individual's susceptibility to confirmation bias? 2. What is the relationship between an individual's metacognitive self and the susceptibility to confirmation bias? 3. Does gender moderate the relationship between specific social domains and confirmation bias?

## **Hypotheses**

After delving into the literature to find the major takeaways, themes, gaps, and future directions, I modeled my hypotheses to answer my research questions and fit the scope of my research design.

*Hypothesis 1: There will be a higher level of confirmation bias in the competence domain, compared to the community domain.* Brcyz et al. (2014) study provides support and explanation for my hypothesis. In their research, they designed their research hypotheses surrounding the social domains based on the Dual Perspective Model of Agency and Communion. This model proposes a pair of archetypes in social cognition, being community and competence. In their study, community was related to honesty and morality; competence was related to intelligence and agency. Community focuses on a public social dynamic, whereas competence focuses on a private social domain. Brcyz et al. (2014) predict a significant difference between the social domains in relation to confirmation bias. They hypothesized that those in the community domain will show less confirmation bias because these individuals will be more focused on observing others and finding biases in others. Those in the community domain are more aware, rational, and equipped to avoid the bias. Those in a social setting with others are also trying to appear consistent and have to work harder cognitively to do so. On the other hand, Brcyz et al. (2014) explain how individuals in the competence domain should show

more confirmation bias. This is due to the fact that competence is an individual basis, which is harder to reflect on individual behavior and point out personal biases. It is much harder to be self-aware and correct irrational biases alone without any social pressure to do so. This is also known as a blind spot bias (Brycz et al., 2014). Moreover, the support from past research led me to predict that those in the community treatment will show less confirmation bias than those in the competence treatment.

*Hypothesis 2a: Higher metacognitive self scores will use confirmation bias equally in social domains. Hypothesis 2b: Lower metacognitive self scores will use confirmation bias more in competence than community.* In addition to testing confirmation bias in the social domains, the Metacognitive Self (MCS) is another important factor to study. Metacognition is essentially how well individuals can see into their own biases and cognitive state (Brycz & Karasiewicz, 2011). MCS is a newer index with some results showing accuracy and validity, nonetheless the index still needs more research to build its reliability. The researchers developed the index to consist of 40 behavioral questions to measure the metacognitive self. Brycz et al. (2014) incorporated the MCS index to strengthen their conclusions about confirmation bias. The higher the MCS score, shows a better ability in seeing their own biases and irrational behaviors. Hence, the lower the MCS score, a lesser ability to do so. This finding motivated Brycz et al. (2014) to predict that higher metacognitive scores would use a confirmatory strategy in both social domains equally to see their own and others' biases. Due to the high score, comes a higher awareness, where the social domain would have no effect on their abilities. Conversely, lower metacognitive scores do not have the same ability. Brycz et al. (2014) predict that because lower metacognitive scores have lesser ability to identify biases altogether, but will use a confirmatory strategy more in the community domain than competence domain. The community domain challenges individuals to work harder to see others' biases to fit into the social domain. That being said, the researchers

predicted a greater amount of confirmation bias in the competence domain. If lower metacognitive scores are utilizing the bulk of their cognitive energy in the community domain, it is likely that they will not be able to do so in the competence domain. This setting is prone for lower metacognitive scores to fail to bias. For those reasons, I also predict that higher MCS scores will use confirmation bias equally and lower MCS scores will use confirmation bias more in the competence domain.

*Hypothesis 3a: Females will strengthen confirmation bias when in competence domain compared to males. Hypothesis 3b: Males will strengthen confirmation bias when in community domain compared to females.* Traut-Mattausch et al. (2011) studied how gender was an individual difference when it comes to confirmation bias, based on different decision making scenarios. More specifically, the researchers were interested in the independent versus interdependent self-construal in biased decision making in males and females. They found that males have a more independent self-construal and females have a more interdependent self-construal. I integrated their findings with my study to form my hypothesis. In terms of social domain, independent self-construal is most similar to the competence domain and interdependent self-construal is most similar to the community domain. Interdependence involves other people in the decision making, which is similar to the community domain. Independence does not involve other people in decision making, which is similar to how the competence domain is just about the individual. Since females have interdependent self-construal and a higher congruence with community, I predict that females have a higher confirmation bias in the opposing social domain, the competence treatment. In the same breadth, because males have independent self-construal and a higher congruence with competence, I predict males have a higher confirmation bias in the opposing domain, the community treatment. By integrating Traut-Mattausch et al. (2011) conclusions and other support for my hypotheses, I predict that females will use

confirmation bias more in the competence domain and males will use confirmation bias more in the community domain.

## **Methods**

### **Research Design**

My research design utilized a between subject design to test two groups of participants. Hence, I had two treatment groups, one being the community treatment and the other being the competence domain with 50 participants for each. I randomly assigned the treatments to develop external validity. The participants were randomly assigned a survey to take with three parts (see appendix for full surveys). The survey questions and setup were inspired by and accredited to Brycz et al. (2014). The first portion of the survey had the following instructions, "Please answer the following 10 questions based on the following instructions. You want to judge a person "A" in terms of intelligence - to what extent on a scale from 0 (not at all important) to 6 (the most important) for you to determine whether they are an (intelligent or honest) person." The intelligent and honest keywords were the priming information and the order were the only differences between treatment groups. There were 5 domain consistent questions first, followed by domain inconsistent information. For example, if someone got the honesty treatment, they have 5 questions related to honesty first followed by 5 questions related to intelligence. All participants got exactly the same questions, but in a different order and a different priming effect to test confirmation bias amongst the social domains. The second portion of the survey was a shortened version of the MCS index (Brycz & Karasiewicz, 2011). There were 20 questions about different behaviors where the participants had to state on a scale of 0 (does not concern me at all)-100 (it totally concerns me). The third portion of the survey was just some demographic questions (i.e. gender, age, class year, and major).

## Participants

My goal was to target a representative sample of Gettysburg college students of all class years, genders, ages, and majors. These were the most relevant descriptives to show my sample population as a representative sample. There were 50 participants for each treatment group. There were 41 males and 59 females (mode = females). My sample included 28 different kinds of majors, which was a wide variety spanning from Biology, to English, to Political Science. My sample also had a fairly equal distribution of class years: 28 Seniors, 20 Juniors, 25 Sophomores, 26 First Years (mode = senior, *Mdn* = sophomore). Lastly, the participants' age ranged from 17-23 ( $M = 19.78$ ,  $SD = 1.35$ , mode = 19).

## Procedure and Sampling

The procedure of the survey was easy to follow and brief enough that people were willing to take it. The survey length was around 10-15 minutes to complete (see appendix for full survey). My survey was on google forms and distributed as a link, as this was the easiest way for many people to take it. Google forms is a user-friendly and widely used platform, thus it was a good medium to format my survey with. I included introductory instructions that follow, "For my OMS Capstone, I am conducting a research project. All answers will remain completely anonymous. Please read and answer all questions to the best of your ability. If you have any questions or concerns feel free to reach out to [rousem01@gettysburg.edu](mailto:rousem01@gettysburg.edu)." I included instructions at the beginning of each part of the survey to ensure clarity. I distributed the survey to various groups of students on campus to get a representative sample (i.e. all class years, courses, athletes, friend groups, student leaders, greek life students, etc.) I distributed the survey to students on campus in the residential cohort and those studying remotely to compensate for the complexity brought by covid-19. My recruitment strategy was randomly sending each survey

to these various groups via text, group me, email, and the digest. To ensure no one took both surveys, I sent the links to different people. Additionally, I made each google form survey for each treatment a different color to help differentiate (i.e. orange for competence).

## **Measures**

The model guiding my research hypotheses follows, confirmation bias as the dependent variable, social domain, MCS, and gender as independent variables. See below for all the measures and operationalization of the variables.

### **Dependent Variable**

Confirmation bias as the dependent variable can be defined by the tendency to acquire or process new information in a way that confirms one's preconceptions and avoids contradiction with prior beliefs (Nickerson, 1998). In other words, individuals will discount contradictory information and believe in confirmatory information. To measure confirmation bias, each participant is answering the first part of the survey with 5 domain consistent questions and 5 domain inconsistent questions in correspondence with the priming treatment keyword (honesty or intelligence). To see the confirmation bias effect, Bar-Tal (2010) created an index that I utilized;  $CB\ index = \text{sum of 5 domain consistent pieces of information} - (\text{minus}) \text{sum of 5 domain inconsistent (diagnostic) pieces of information}$ . See part two of the survey in the appendix to see the example questions participants answered. The higher the CB score, the higher confirmation bias is observed.

### **Independent Variables**

Social domains were the first primary independent variable tested. As previously explained, community was related to honesty and competence was related to intelligence. The variables were established by Brycz et al. (2014). Each group got a random assignment of the

treatment community or competence. Community is a construct embodied by group dynamic, morality and warmth (i.e. community statement from part one - This person gives money back after finding it on the ground). Competence is a construct embodied by individual actions, pursuits, and efficiency (i.e. competence statement from part one - This person gets an A on the exam). Thus, I used the differing groups as comparisons to test the differences amongst the social domains. With the random assignment, some participants got honesty priming and some got intelligence priming, which determined their social domain group. See appendix to see the survey to view part one for the full set of social domain questions.

The Metacognitive Self (MCS) is another measure established by past researchers (Brycz et al., 2011). MCS scores translate an individual's ability to identify behaviors and biases. The index originally contained 40 questions with a 0%-100% scale, but I altered the index to include 20 questions with a scale of 0 (does not concern me at all)-100 (it totally concerns me). An example statement included in the survey is, "If something or someone from the outside forces me to change my behavior, my views concerning this behavior also change." To operationalize, I calculated a raw sum score of these items to serve as the MCS score.

Gender is the last independent variable to determine an effect with confirmation bias. The options were male, female, and open ended box for another means of gender identification as a way to be inclusive to all identities. Gender was later coded as 1 = female and 0 = male.

### **Demographic Variables**

As for the demographic variables, I included gender, age, class year, and major. See above for the measure and operationalization of gender. Age had the options of 17, 18, 19, 20, 21, 22, and 23 to reach the ages of the college students I distributed the survey to. Class year had

the options of 2021 (senior), 2022 (junior), 2023 (sophomore), and 2024 (freshman). Lastly, class year had an open ended box to allow people to type their unique majors in.

## Results

After data collection and data cleaning, I ran independent samples t-tests to test each hypothesis. The 50 subjects in the community treatment had a mean confirmation bias score 5.42 ( $SD = 7.75$ ), which is significantly higher than the test value of 0,  $t(49) = 4.95, p < .001, 95\% CI = [3.22, 7.62]$ . The 50 subjects in the competence treatment had a mean confirmation bias score 9.06 ( $SD = 4.76$ ), which is significantly higher than the test value of 0,  $t(49) = 13.46, p < .001, 95\% CI = [7.71, 10.41]$ . Both treatment groups showed confirmation bias, but the competence treatment showed a higher level of confirmation bias. Results indicate a significant higher observation of confirmation bias in competence group ( $M = 9.06, SD = 4.76$ ) over the community group ( $M = 5.42, SD = 7.75$ ),  $t(81.38) = -2.83, p = .006$ . Thus, because the competence treatment mean was higher than the community treatment mean, hypothesis 1 is supported. For hypothesis 2, there was no significant difference between the MCS of the community treatment ( $M = 111.68, SD = 20.68$ ) compared to MCS of the competence treatment ( $M = 115.00, SD = 21.67$ ),  $t(98) = -.784, p = .435$ . Therefore, there were no significant results to show the impact of MCS in relation to confirmation bias amongst the treatment groups and there is no support for hypothesis 2a or 2b. Lastly, for hypothesis 3, there was no significant difference between the observation of confirmation bias score in the community treatment of females ( $M = 4.91, SD = 7.88$ ) compared to males ( $M = 6.33, SD = 7.65$ ),  $t(48) = -.621, p = .537$ . There was no significant difference between the observation of confirmation bias score in the competence treatment of females ( $M = 8.33, SD = 4.63$ ) compared to males ( $M = 9.91, SD = 4.87$ ),  $t(48) = -1.17, p = .246$ . Furthermore, hypothesis 3a and 3b fail to be supported.

## **Discussion**

To reiterate, my first hypothesis was supported and the second 2 were not supported. Hypothesis 1, with support, shows how social domains matter and impact behavior. Both domains had a susceptibility to confirmation bias, but the competence domain had a higher level. This supports the notion that when in the competence domain, people are less aware of their own biases and have a lesser tendency to self-regulate irrationality. On the contrary, those in the community domain showed less bias, which illustrates that people are more self-aware and aiming to appear consistent. The social domain of community is one that forces people to try and act rational, while being more cognizant of biases. There is something to be said about community acting as a beneficial social domain to prevent the susceptibility of confirmation bias. Next, hypothesis 2 was not supported, which goes to show that MCS scores do not really have a great indicator of confirmation bias. There was not significant statistics to support a difference between the competence and community domain of MCS scores. With that being said, there cannot be any true conclusions drawn with a lack of support. The third hypothesis also lacked support due to no significant statistics to support a difference. Similar to hypothesis 2, there was not a major takeaway between gender and confirmation bias due to a lack of support. For both hypothesis 2 and 3, had there been more participants, significance may have supported some of these predicted differences. Nonetheless, hypothesis 1 support had an important takeaway, while hypothesis 2 and 3 had no support.

## **Implications**

Implications of my study can be applied to the broader management field, as well. The biggest takeaway and connection is what is occurring in the world right now. Most people are working from home, isolated, and lacking from any true contact due to the pandemic. This

current situation mirrors the competence domain quite closely. It is evident that many people are feeling burnt out, a lack of motivation, and fatigued from all the screen time. Many working individuals lacked that community domain, which was supported as a tool to help reduce confirmation bias. The community domain is almost a buffer to help people be hyper aware of others behavior and individual behavior. There is a pressure to perform and innovate ideas when you are physically around people, rather than on zoom in a meeting zoning out. The big takeaway is that all this alone time and computer time is putting most people in the competence domain whether they like it or not are most likely being affected by irrational behavior. Future research could study how the virtual impact due to covid-19 has taken a toll on irrational behavior and decision making. I would assume there would be some impactful results to account for the tough working dynamic everyone has had to adapt to. Beyond that example, the overarching takeaway is that social domains matter and have an effect. This can be applied to the workplace culture, structure, etc. If an organizational culture is more community vs. competence based, that could say something about the biases present. Moreover, relationships matter, in addition to how the social domain is framed. I also think studying what workplace culture is in correspondence with the dual perspective model could help show bias tendencies within different organizations.

### **Limitations**

Even with some major takeaways and implications, there were limitations within the study. The biggest limitation was a somewhat small sample size. With the  $\frac{3}{4}$  of students being sent home, it was difficult to get more than 50 participants for each treatment. In the past, it has been much easier to collect data in person, rather than fully remotely. If there was a larger sample size, I believe that there would be some differing support for hypothesis 2 and 3. Gender

differences were on track to support my hypothesis, but lacked significant results. Thus, more participants could have helped achieve that significance. Next, the MCS score did not really have any effect. There was no significance or support for this variable. The MCS is a newer index and variable used to give insight into biases, but needs more future research. There was not much validity to utilizing the MCS in my study. Therefore, future research can continue to work on the index and instill better accuracy. Lastly, capturing confirmation bias is tough to grasp and measure. I modified the confirmation bias index, but still found that it maybe was not the best way to capture the bias. Using honesty and intelligence priming meant that everyone had their own subjective ideas of these terms. Perhaps some subjects found the behavioral statements completely unrelated or a differing meaning of the words. Some people may have thought that the domain inconsistent statements could be matched with their priming domain. There was room for subjective differences, which does not show confirmation bias at play in the best way possible. Future research could expand beyond a survey format and get empirical observations or casual lab testing to show the greater effect. All in all, the study has room to expand and continue to build upon with intentional future research.

## **Conclusion**

The past literature on confirmation bias helped inspire my research and work on applying it in a meaningful way. Past research looked into many aspects of confirmation bias, but I focused on a relevant application to capture it from the perspective of my peers, Gettysburg College Students. The between-study design helped capture my 2 treatments of social domains at hand. After data collection and statistical analyses, only hypothesis 1 was supported. Hence, the biggest takeaway from the research was that social domains matter. Community had a lesser confirmation bias than the competence domain. This conclusion allowed a broader application to

the management field, applied to the current situation for most workers. It would be worthwhile to apply this topic to gain insight on how biases are at play while everyone is working from home. In addition, there were some limitations, which could be improved upon in future research in hope of getting statistically significant results. In conclusion, confirmation bias is a cognitive bias, with a higher susceptibility in the competence domain compared to the community domain.

## References

- Allahverdyan, A. E., & Galstyan, A. (2014). Opinion dynamics with confirmation bias. *PLOS ONE*, 9(7), 1-14. [10.1371/journal.pone.0099557](https://doi.org/10.1371/journal.pone.0099557)
- Bagchi, R., Ham, S. H., & He, C. (2020). Strategic implications of confirmation bias-inducing advertising. *Production and Operations Management*, 29(6), 1573-1596. [10.1111/poms.13176](https://doi.org/10.1111/poms.13176)
- Bar-Tal, Y. (2010). When the need for cognitive structure does not cause heuristic thinking: The moderating effect of the perceived ability to achieve cognitive structure. *Psychology*, 1, 96-105. [10.4236/psych.2010.12013](https://doi.org/10.4236/psych.2010.12013)
- Bogan, V., & Just, D. (2009). What drives merger decision making behavior? Don't seek, don't find, and don't change your mind. *Journal of Economic Behavior & Organization*, 72(3), 930-943. [10.1016/j.jebo.2009.08.007](https://doi.org/10.1016/j.jebo.2009.08.007)
- Bradley, B.D., Hutchison, K.E., & Frank, M. J. (2011). Dopaminergic genes predict individual differences in susceptibility to confirmation bias. *Journal of Neuroscience*, 31(16), 6188-6198. [10.1523/JNEUROSCI.6486-10.2011](https://doi.org/10.1523/JNEUROSCI.6486-10.2011)
- Brycz, H., Wyszomirska-Góra, M., Bar-Tal, Y., & Wiśniewski, P. (2014). The effect of metacognitive self on confirmation bias revealed in relation to community and competence. *Polish Psychological Bulletin*, 45(3), 306–311. [10.2478/ppb-2014-0037](https://doi.org/10.2478/ppb-2014-0037)
- Brycz, H., & Wyszomirska-Góra, M. (2011). Metacognitive and self-regulation: The metacognitive scale. *Acta Neuropsychologica*, 9(3), 263-281.
- Del Vicario, M., Scala, A., Caldarelli, G., Stanley, H. E., & Quattrociocch, W. (2017). Modeling confirmation bias and polarization. *Science Reports*, 7. [10.1038/srep40391](https://doi.org/10.1038/srep40391)
- Kahneman D. (1973). *Attention and Effort*. Englewood Cliffs, NJ: Prentice-Hall Inc.

- Knobloch-Westerwick, S., Mothes, C., & Polavin, N. (2020). Confirmation bias, ingroup bias, and negativity bias in selective exposure to political information. *Communication Research*, 47(1), 104–124. [10.1177/0093650217719596](https://doi.org/10.1177/0093650217719596)
- Meppelink, C.S., Smit, E. G., Fransen, M. L., & Diviani, N. (2019). I was right about vaccination: Confirmation bias and health literacy in online health information seeking, *Journal of Health Communication*, 24(2), 129-140. [10.1080/10810730.2019.1583701](https://doi.org/10.1080/10810730.2019.1583701)
- Nickerson, R.S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology*, 2(2), 175-220. [10.1037/1089-2680.2.2.175](https://doi.org/10.1037/1089-2680.2.2.175)
- Palminteri, S., Lefebvre, G., Kilford, & E. J., & Blakemore, S. J. (2017). Confirmation bias in human reinforcement learning: Evidence from counterfactual feedback processing. *PLOS Computational Biology*, 13(8). [10.1371/journal.pcbi.1005684](https://doi.org/10.1371/journal.pcbi.1005684)
- Pilditch, T. D., & Custers, R. (2018). Communicated beliefs about action-outcomes: The role of initial confirmation in the adoption and maintenance of unsupported beliefs. *Acta Psychologica*, 184, 46-63. [10.1016/j.actpsy.2017.04.006](https://doi.org/10.1016/j.actpsy.2017.04.006)
- Quinn, V.S. (2015). Using astrology to confront & discuss pseudoscience in the classroom. *The American Biology Teacher*, 77(7), 542–548. [10.1525/abt.2015.77.7.10](https://doi.org/10.1525/abt.2015.77.7.10)
- Rajsic, J., Wilson, D. E., & Pratt, J. (2015). Confirmation bias in visual search. *Journal of Experimental Psychology: Human Perception and Performance*, 41(5), 1353–1364. [10.1037/xhp0000090](https://doi.org/10.1037/xhp0000090)
- Simon H. A. (1955). A behavioral model of rational choice. *The Quarterly Journal of Economics* 69, 99–118. [10.2307/1884852](https://doi.org/10.2307/1884852)

Traut-Mattausch, E., Jonas, E., Frey, D., & Zanna, M. P. (2011). Are there "his" and "her" types of decisions? Exploring gender differences in the confirmation bias. *Sex Roles: A Journal of Research*, 65(3-4), 223–233. [10.1007/s11199-011-0009-2](https://doi.org/10.1007/s11199-011-0009-2)

Williams, P., Kern, M. L., Waters, L. (2016). Exploring selective exposure and confirmation bias as processes underlying employee work happiness: An intervention study. *Frontiers in Psychology*. [10.3389/fpsyg.2016.00878](https://doi.org/10.3389/fpsyg.2016.00878)

## Appendix

### Community Survey

([https://docs.google.com/forms/d/e/1FAIpQLSccBsyuM3Kksmxo6FxIbS2kY2NeLV1\\_tBFI08YmMaK3VaFjGw/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSccBsyuM3Kksmxo6FxIbS2kY2NeLV1_tBFI08YmMaK3VaFjGw/viewform?usp=sf_link))

For my OMS Capstone, I am conducting a research project. All answers will remain completely anonymous. Please read and answer all questions to the best of your ability. If you have any questions or concerns feel free to reach out to rousem01@gettysburg.edu.

Part 1: You want to judge a person “A” in terms of **honesty** - to what extent on a scale from 0 (not at all) to 6 (the most) are crucial for you to be sure whether they are an **honest** person.

1. This person gives money back after finding it on the ground.
  - 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
2. This person reports an honor code violation when seeing it.
  - 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
3. This person gives direct and constructive advice to friends.
  - 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important

- 6 - the most important
4. This person asks for their drink order to be remade when it is not correct.
- 0 - not at all important
- 1 - not very important
- 2 - a little bit important
- 3 - neutral importance
- 4 - kind of important
- 5 - very important
- 6 - the most important
5. This person calls the police when witnessing a crime.
- 0 - not at all important
- 1 - not very important
- 2 - a little bit important
- 3 - neutral importance
- 4 - kind of important
- 5 - very important
- 6 - the most important
6. This person gets an A on the exam.
- 0 - not at all important
- 1 - not very important
- 2 - a little bit important
- 3 - neutral importance
- 4 - kind of important
- 5 - very important
- 6 - the most important
7. This person has a high IQ score.
- 0 - not at all important
- 1 - not very important
- 2 - a little bit important
- 3 - neutral importance
- 4 - kind of important
- 5 - very important
- 6 - the most important
8. This person asks questions and seeks answers out when something is not clear.
- 0 - not at all important
- 1 - not very important
- 2 - a little bit important
- 3 - neutral importance
- 4 - kind of important
- 5 - very important

- 6 - the most important
9. This person can critically analyze and engage in conversations.
- 0 - not at all important
- 1 - not very important
- 2 - a little bit important
- 3 - neutral importance
- 4 - kind of important
- 5 - very important
- 6 - the most important
10. This person has goals and takes action steps to accomplish them.
- 0 - not at all important
- 1 - not very important
- 2 - a little bit important
- 3 - neutral importance
- 4 - kind of important
- 5 - very important
- 6 - the most important

Part 2: Below you will find 20 detailed behaviors, thoughts, and feelings that may concern you in a certain way. Imagine that such behavior happens to you and answer on the scale from 0% (not at all concerning) to 100% (it totally concerns me) indicating to what extent this behavior concerns you – e.g. describes your (even hypothetical) reactions.

1. After some time I notice my own mistakes more often and to a lesser degree look for them around me.

0 (not at all concerning) – 10 (it totally concerns me)

2. I value some personality traits more than others and I have a more positive attitude towards a person who is intelligent than towards a person who is patient.

0 (not at all concerning) – 10 (it totally concerns me)

3. I tend to judge other people positively rather than negatively.

0 (not at all concerning) – 10 (it totally concerns me)

4. In a situation when my friend failed his university entrance examination I think about him even more positively and warmly than before the failure because I imagine that it is very painful for him.

0 (not at all concerning) – 10 (it totally concerns me)

5. I remember information better when I can relate it to the knowledge I already have.

0 (not at all concerning) – 10 (it totally concerns me)

6. I remember information best when it is contradictory to my current knowledge or consistent with it; the worst information for me to remember is neutral information.

0 (not at all concerning) – 10 (it totally concerns me)

7. I can recall specific images more easily than sophisticated words.

0 (not at all concerning) – 10 (it totally concerns me)

8. I would visit a doctor for a medical examination more quickly if news were spread that a famous person (e.g. famous actress) has cancer than if statistics of incidence were published.

0 (not at all concerning) – 10 (it totally concerns me)

9. If something or someone from the outside forces me to change my behavior, my views concerning this behavior also change.

0 (not at all concerning) – 10 (it totally concerns me)

10. I don't like people, phenomena or even dishes which in the past I associated with something unpleasant.

0 (not at all concerning) – 10 (it totally concerns me)

11. As a child and also later as an adult I have had views on politics, religion or upbringing rather similar to the views of my parents.

0 (not at all concerning) – 10 (it totally concerns me)

12. I learn most new behavior by observing other people's actions and their results.

0 (not at all concerning) – 10 (it totally concerns me)

13. In the presence of very strong emotions, I cannot control myself and do not behave rationally.

0 (not at all concerning) – 10 (it totally concerns me)

14. I more readily help people who are similar to me in some way.

0 (not at all concerning) – 10 (it totally concerns me)

15. When someone gives me a gift, I repay in a similar manner.

0 (not at all concerning) – 10 (it totally concerns me)

16. My efficiency is more important to me than morality, I can forgive myself mistakes related to morality (e.g. lies) but I can't forgive myself failures (e.g. a gaffe in the presence of other people).

0 (not at all concerning) – 10 (it totally concerns me)

17. TV commercials really influence my choices and I buy advertised products more often.

0 (not at all concerning) – 10 (it totally concerns me)

18. I forget information most slowly when it is consistent with my current knowledge.

0 (not at all concerning) – 10 (it totally concerns me)

19. Sometimes only serious arguments can persuade me to change my views; sometimes the charming appearance of the speaker is enough.

0 (not at all concerning) – 10 (it totally concerns me)

20. I repeat those behaviors for which I am rewarded.

0 (not at all concerning) – 10 (it totally concerns me)

Part 3: Please answer the last few questions. Thank you for your participation in my survey!

What is your gender?

Male

Female

Open response box

What is your age?

17

18

19

20

21

22

23

What is your class year?

2021

2022

2022

2023

What is your major?

Open ended box

### Competence Survey

([https://docs.google.com/forms/d/e/1FAIpQLSex4\\_vrTW5ULfLjzbB0BOhdF4HzrLa9EXvkgBc01EkE7wV-Cg/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSex4_vrTW5ULfLjzbB0BOhdF4HzrLa9EXvkgBc01EkE7wV-Cg/viewform?usp=sf_link))

For my OMS Capstone, I am conducting a research project. All answers will remain completely anonymous. Please read and answer all questions to the best of your ability. If you have any questions or concerns feel free to reach out to [rousem01@gettysburg.edu](mailto:rousem01@gettysburg.edu).

Part 1: Please answer the following 10 questions based on the following instructions. You want to judge a person “A” in terms of **intelligence** - to what extent on a scale from 0 (not at all) to 6 (the most) are crucial for you to be sure whether they are an **intelligent** person.

1. This person gets an A on the exam.
  - 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
2. This person has a high IQ score.
  - 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
3. This person asks questions and seeks answers out when something is not clear.
  - 0 - not at all important

- 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
4. This person can critically analyze and engage in conversations.
- 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
5. This person has goals and aspirations and takes action steps to accomplish them.
- 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
6. This person gives money back after finding it on the ground.
- 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
7. This person reports an honor code violation when seeing it.
- 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
8. This person gives direct and constructive advice to friends.
- 0 - not at all important

- 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
9. This person asks for their drink order to be remade when it is not correct.
- 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important
10. This person calls the police when witnessing a crime
- 0 - not at all important
  - 1 - not very important
  - 2 - a little bit important
  - 3 - neutral importance
  - 4 - kind of important
  - 5 - very important
  - 6 - the most important

Part 2: Below you will find 20 detailed behaviors, thoughts, and feelings that may concern you in a certain way. Imagine that such behavior happens to you and answer on the scale from 0% (not at all concerning) to 100% (it totally concerns me) indicating to what extent this behavior concerns you – e.g. describes your (even hypothetical) reactions.

1. After some time I notice my own mistakes more often and to a lesser degree look for them around me.

0 (not at all concerning) – 10 (it totally concerns me)

2. I value some personality traits more than others and I have a more positive attitude towards a person who is intelligent than towards a person who is patient.

0 (not at all concerning) – 10 (it totally concerns me)

3. I tend to judge other people positively rather than negatively.

0 (not at all concerning) – 10 (it totally concerns me)

4. In a situation when my friend failed his university entrance examination I think about him even more positively and warmly than before the failure because I imagine that it is very painful for him.

0 (not at all concerning) – 10 (it totally concerns me)

5. I remember information better when I can relate it to the knowledge I already have.

0 (not at all concerning) – 10 (it totally concerns me)

6. I remember information best when it is contradictory to my current knowledge or consistent with it; the worst information for me to remember is neutral information.

0 (not at all concerning) – 10 (it totally concerns me)

7. I can recall specific images more easily than sophisticated words.

0 (not at all concerning) – 10 (it totally concerns me)

8. I would visit a doctor for a medical examination more quickly if news were spread that a famous person (e.g. famous actress) has cancer than if statistics of incidence were published.

0 (not at all concerning) – 10 (it totally concerns me)

9. If something or someone from the outside forces me to change my behavior, my views concerning this behavior also change.

0 (not at all concerning) – 10 (it totally concerns me)

10. I don't like people, phenomena or even dishes which in the past I associated with something unpleasant.

0 (not at all concerning) – 10 (it totally concerns me)

11. As a child and also later as an adult I have had views on politics, religion or upbringing rather similar to the views of my parents.

0 (not at all concerning) – 10 (it totally concerns me)

12. I learn most new behavior by observing other people's actions and their results.

0 (not at all concerning) – 10 (it totally concerns me)

13. In the presence of very strong emotions, I cannot control myself and do not behave rationally.

0 (not at all concerning) – 10 (it totally concerns me)

14. I more readily help people who are similar to me in some way.

0 (not at all concerning) – 10 (it totally concerns me)

15. When someone gives me a gift, I repay in a similar manner.

0 (not at all concerning) – 10 (it totally concerns me)

16. My efficiency is more important to me than morality, I can forgive myself mistakes related to morality (e.g. lies) but I can't forgive myself failures (e.g. a gaffe in the presence of other people).

0 (not at all concerning) – 10 (it totally concerns me)

17. TV commercials really influence my choices and I buy advertised products more often.

0 (not at all concerning) – 10 (it totally concerns me)

18. I forget information most slowly when it is consistent with my current knowledge.

0 (not at all concerning) – 10 (it totally concerns me)

19. Sometimes only serious arguments can persuade me to change my views; sometimes the charming appearance of the speaker is enough.

0 (not at all concerning) – 10 (it totally concerns me)

20. I repeat those behaviors for which I am rewarded.

0 (not at all concerning) – 10 (it totally concerns me)

Part 3: Please answer the last few questions. Thank you for your participation in my survey!

What is your gender?

Male

Female

Open response box

What is your age?

17

18

19

20

21

22

23

What is your class year?

2021

2022

2022

2023

What is your major?

Open ended box