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THE EFFECT OF NATURAL AFFECT ON AVAILABILITY AND ANCHORING HEURISTICS

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ABSTRACT

This study evaluated the extent to which naturally arising feelings of happiness and sadness influenced people's use of the availability and anchoring heuristics. In the first study, I examined the hypothesis that happy moods would increase the use of the availability heuristic, and sad moods increase the use of the anchoring heuristic. In the second study, I sought to replicate the first study and examined whether saliency moderated these effects and the extent to which they arouse for both state and trait feelings. The results were inconsistent with prior literature. For instance, the data from Study 1 indicated that as positive mood increased, people used the anchoring heuristic more, rather than less. In Study 2, instead of sadness reducing the use of the availability heuristic, as state sadness increased, so too did the use of availability heuristic. Also, high happiness and high sadness together, creating a state of ambivalence, decreased people's use of the anchoring heuristic. Though the results of these studies were contradictory with extant literature, they highlight the need to conduct more research examining naturally occurring moods might operate.

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Chapter 1

Introduction

Making decisions is a part of daily life, and people use different thought processes to make them. Some of these thinking processes are slower and systematic, while some others are faster and intuitive (Kahneman, 2011). People seem to rely on intuitive processes, which need less time and effort, more often. One example of using intuitive thinking is relying on heuristics. Heuristics are mental shortcuts that quicken thought processes. A factor that can influence the usage of heuristics is mood. Positive or negative mood can affect people's reliance on heuristics when making decisions. Saliency of the mood is also important because, based on how noticeable one's mood is to him/herself, it could alter the strength of its effect on heuristics usage. Though heuristics are useful, they do not always provide an accurate decision. The purpose of these studies is to examine whether everyday feelings (both trait and state) influence people's use of heuristics and whether saliency of one's mood moderates these effects. By understanding these processes, the goal is to better understand how and when feelings influence thought.

To address how naturally occurring moods might influence people's use of heuristics, I will first discuss how and why mood influences thinking. Then, I will hone in how manipulated moods alter the use of heuristics, specifically the availability and anchoring heuristics. Afterward, I will report on the results of two different studies that test: 1) How naturally arising happy and sad mood affects the use of availability and anchoring heuristics, and 2) How

naturally arising happy and sad moods (at both the state and trait level) interact with their saliency to alter the degree to which people use the availability and anchoring heuristics.

Different mood states can alter people's thinking processes. According to the affect-as-information perspective (Schwarz & Clore, 1983), affective states provide people with information about their environments. Happy moods indicate that one's environment is safe, that vigilance is not needed, and that people can rely on what they know. Sad moods indicate the environment is problematic, that vigilance is needed, and that people should question what they know. As a result, people in happy moods tend to focus on the big-picture and engage in more global processing, which relies on more general and accessible information. People in a sad mood engage in more local processing, focusing on the details (Gasper & Clore, 2002). Gasper and Clore (2002) evaluated the effect of mood on this global and local processing by manipulating participants' mood to be either happy or sad and assessed their thinking through a matching task. In this task, the participants were presented with two geometric objects. These two objects were bigger triangles and squares (the global component), which were created from smaller triangles and squares (the local component). The participants matched a target figure (a single triangle or square) to either an object's global shape or the shape of its local components. The authors found that participants who were in a happy mood categorized the object based on the figure as a whole, a global match, and participants who were in a sad mood categorized the object based on the smaller figures it was made of, a local match (Gasper & Clore, 2002).

These effects also extend to logical thinking problem. In another study (Sinclair & Melvin, 1995) testing the effects of mood on judgmental accuracy, participants were induced to feel a happy, neutral, or sad mood. These participants, who were trained in statistics, were then supposed to estimate the correlation coefficient depicted in nine scatterplots. The researchers

found that participants in a happy mood were less accurate that the participants in a sad mood. Less accuracy was illustrated by the happy participants using fewer digits in their estimations, displaying less concentration, and providing less detailed explanations for their estimations. These results supported the study's hypothesis that happy participants seem to process information in a nonsystematic manner, relying more on global/general thought processes and hence relying more on heuristics in judgment. On the other hand, sad participants did rely on local/detailed thought processes and processed information more systematically with less reliance on heuristics (Sinclair & Melvin, 1995).

Recall that mood influences thought because it provides information. One factor that can influence whether affective information is paid attention to or not is the saliency of the mood state. People tend to think about how they feel about experiences and news. If those feelings are salient to them and experienced as providing relevant information about the task at hand, they can influence thought (Greifeneder et al., 2010). For example, in one study, the experimenters manipulated participants' awareness of their feelings by altering the degree to which their feelings were salience (Siemer & Reisenzein, 1998). In the salient condition, respondents filled out a mood questionnaire before making judgments, which should encourage them to bring their feelings into awareness. In the non-salient condition, respondents did not fill out a mood questionnaire. Consistent with the hypothesis that salient information would be more informative, there was more substantial mood effects on judgment when the mood was salient vs. not (Siemer & Reisenzein, 1998). Though saliency of mood is an essential factor in effecting judgment, it has also been found that natural (not induced) affect can sometimes influence judgment regardless of its saliency (however, this is not the case for negative affect) (Gasper & Danube, 2016). Therefore, in this project, I further explored the effect of saliency of affect/mood

to come to a more clarified consensus on whether or not it moderates the extent to which mood states alter people's use of heuristics.

In this paper, to examine the effect of mood on heuristics, the focus will be on two common heuristics: the availability heuristic and the anchoring heuristic. The availability heuristic occurs when people's thought processes are affected by how available a relevant instance is or how easy it is remembered (Tversky & Kahneman, 1973). According to the availability heuristic, people evaluate the frequency or probability of something happening by how easily relevant events come to mind. This reliance on ease occurs because people have learned through life experiences that, for example, events that happen more often (or at least seem to happen more often) will be remembered better and come to mind quickly. So, people estimate that the possibility of that event happening again is higher because of how easily they can recall or imagine it. Since, much of the time, what is available in mind does not necessarily mean that it has a more frequency of occurrence, availability heuristics can lead to systematic biases (Tversky & Kahneman, 1973).

The second heuristic that this paper examines is the anchoring heuristic. An anchor is usually an initial estimate, which people use as a place to start that yields the faith of the final answer. Different anchors will create a biased final answer (Tversky & Kahneman, 1974). In a study done by Jacowitz and Kahneman (1995), participants took part in an estimation task in which they first judged if the given number (the anchor) is higher or lower than the actual height or weight of an object, for example. Then the participants gave their estimate of what that actual value is. It was found that the estimates were consistent with the judgment made about that initial anchor (Jacowitz & Kahneman, 1995). For example, if the anchor was a low number, respondents were more likely to make a low estimate, and if it was a high number, they were

more likely to make a high estimate. Thus, if people receive information about an initial of anchor, such as an initial price for a dress, they may be more tempted to buy it at a discount, given that initial price (even if he initial price was too high).

The tendency for people to rely on heuristics is not fixed. A variety of factors can influence the degree to which people rely on heuristics, including a person's mood state. For instance, in a study (Park & Banaji, 2000), participants in happy, neutral, or sad moods "remembered" if names implying a specific race (ex: African American, European American) belonged to a specific social category (ex: criminal, politician, basketball player). This method was designed to examine people's use of stereotypes (based on the availability of the stereotype). Participants in a positive mood wrongly identified members of stereotyped groups more often than participants in a sad mood. Therefore, positive mood increased people's use of the availability heuristic usage (Park & Banaji, 2000). In another study, positive and negative mood were induced, and the participants were given a questionnaire about hypothetical financial gain/loss situations (Mohanty & Suar, 2014). Participants in a negative mood were more original and flexible in selecting a choice for each situation than the participants in a positive mood, illustrating that negative mood resulted in a systematic information processing (Mohanty & Suar, 2014).

Although positive mood is typically associated with heuristics' increased use, the anchoring heuristic is an exception to this association. Anchoring has an active thought process, and judgments are made by searching for anchor-consistent information (Epley & Gilovich, 2001). So, if sad people think more actively about the anchor, they would be more prone to incorporate the anchor into their judgment (Englich & Soder, 2009). In a study, after a mood induction task, participants were presented with an anchoring task, and the authors found that sad

mood created a higher judgmental bias for anchoring (Bodenhausen, Gabriel, & Lineberger, 2000). Sad people tended to overthink about unimportant details (anchors) which made them more susceptible to the anchoring bias. Therefore, because a positive mood is associated with a less detailed thinking style, it would lead to less anchoring bias (Bodenhausen et al., 2000).

There is a common factor in all the studies above: they all manipulated mood. This procedure is ideal in that it provides experimental control, but it does not address whether these effects happen in daily life. Also, a manipulation might make the mood more salient than if it is naturally occurring. If so, people might not need to be concerned that naturally occurring mood is having an impact on their use of heuristics because it is not salient. To examine this issue, these studies try to fill this gap by examining to what extent naturally induced mood influences people's reliance on availability and anchoring heuristics. Natural mood focuses on the natural arousal of the participants' feelings rather than a mood induced in the lab. By focusing on natural mood, one can obtain a more realistic account of how mood in the real world can affect people's use of heuristics. In this paper, I will examine the effects of natural mood on heuristics via two different means. First, I will examine how a naturally arising state moods (how the participant feels right now) alter the use of heuristics. State mood is essential because it captures the momentary mood of the participants, which might be the mood state most likely to be experienced as being relevant to or about the task at hand. Second, I will also examine how natural arising trait moods (how the participant typically feels) alter the use of heuristics. Trait mood is essential because it captures the more general mood that a participant is in daily (e.g., characteristics of a person), which might exert a more constant influence on the task at hand. By examining both of these types of feelings, the goal is to try to determine whether mood effects on heuristics usage is more from a state/momentary mood or trait/overall characteristic type of

mood. Finally, the saliency of these natural state and trait moods will be examined with respect to how much it promotes heuristics usage.

In Study 1, the independent variable was naturally occurring levels of happiness and sadness. In the second study, I build upon this work by examining naturally arising state and trait moods as well as the saliency of mood. The dependent variable in both studies was how much people use the availability and anchoring heuristics.

I hypothesized that regardless of whether the mood is assessed at the state or trait level, people who are in a naturally happy mood are more likely than people who are in a naturally sad mood to use the availability heuristic. Additionally, people who are in a naturally sad mood are hypothesized to be more likely than people who are in a naturally happy mood to use the anchoring heuristic. Lastly, I hypothesized that, if saliency matters, as in Siemer & Reiszenein (1998), mood effects will increase as saliency increases. Therefore, mood effects will be stronger in the salient than the non-salient condition.

Chapter 2

Study 1 Method

In this study, the effect of mood on availability and anchoring heuristics was examined. To measure mood, participants indicated their current mood state at the beginning of the study. Then, they completed tasks that assess the use of the availability heuristics and the anchoring heuristic.

Participants. Participants were undergraduate students at the Pennsylvania State University (142 total with 49 male and 86 female) between the ages of 18-44, who received

course credit for participating in the study. N = 142 detects a correlation of .24, alpha = .05, and power = .80. Participants reported being 13 (9.42%) Asian/ Asian American/ Pacific Islander, 8 (5.80%) Black/ African American, 8 (5.80%) Latino/ Hispanic American, 1 (.72%) Native American/ American Indian, 2 (1.45%) Arab/Middle-eastern, and 106 (76.81%) Caucasians. All, except 11, participants were primary English speakers.

Procedure. Participants signed up online through Penn State's Department of Psychology's Subject Pool system to participate in the on-line study. After reading the informed consent and answering demographic questions about their gender, age, ethnicity, and their primary language, respondents completed the mood measure. The Four-Mood Introspection Scale (FMIS) (Mayer, Allen, & Beauregard, 1995) was used to assess happiness (Cheerful, Happy, Lively, Joyful, $\alpha = .84$) and sadness (Blue, Depressed, Unhappy, Sad, $\alpha = .87$). The Brief Mood Introspection Scale was also included to measure pleasantness/unpleasantness and arousal/calmness. These data are not reported here because the focus is on happiness/sadness. However, more information is available in the supplemental materials (see Appendix A). For these mood measures, respondents rated these various mood adjectives, using a scale ranging from 1 (*definitely do not feel*) to 4 (*definitely feel*). Lastly, they also completed a measure of their general mood on a scale of 0 (*Very Unpleasant*) to 10 (*Very Pleasant*).

The second part of the survey contained the availability heuristic task modeled after Amos Tversky and Daniel Kahneman's (1973) study on the fame name task. In the fame name task, respondents learned that they were participating in a memory task and saw a list of famous and not famous names. They had to recall if the list had more male or female names. They were asked to read a list of 18 names. Each name appeared on the computer screen for 2 seconds. There were two conditions. In one condition, the list contained eight famous female names and

ten non-famous male names, while the other condition was contained eight famous male names and ten non-famous female names. After reading the names, participants indicated how many female names they saw. If respondents used the availability heuristic, they should overestimate how many famous names were displayed. That is, when the famous names were male, they should overestimate how many male names they read; when the famous names were female, they should overestimate how many female names were displayed.

To answer the question of whether the mood of the participants influenced to what extent the respondents relied on availability heuristics, I needed to know, for each participant, how much were they influenced by the availability of having famous names (female or male) in their mind. To compute that variable, if the participant is in the famous female name condition, their score is used on the availability measure. However, if the person is in the famous male condition, then the variable is recomputed such that higher numbers indicate an availability effect (18 minus their score on the availability measure). Thus, if they said they saw eight female names, that means they saw ten male names, and ten would be their score. This dependent variable represents the number of female names in the female condition and the number of male names in the male famous condition. Higher numbers mean greater use of the availability condition, regardless of whether they saw male or female names.

In the anchoring heuristic task, the participants were asked questions in which they had to make estimates (e.g., estimating the height of Mount Everest, Bodenhausen, Gabriel, & Lineberger, 2000). For each question, there were two anchors (e.g., Is the height of Mount Everest taller or shorter than 45,500 feet? Or Is the height of Mount Everest taller or shorter than 2,000 feet?). There were 11 questions, each with a high anchor (e.g., 45,500 feet), and a low anchor (e.g., 2,000 feet). The questions and the anchors were obtained from Jacowitz &

Kahneman's (1995) paper entitled Measures of Anchoring in Estimation Tasks. Participants were randomly assigned to one of two conditions. In one condition, the odd questions had a low anchor, and the even questions had a high anchor, while the other condition was vice versa. After making an estimate based on the anchors, the participants indicated their confidence level on a scale of 0 (*Not at all confident*) to 10 (*Very confident*) for the estimates that they gave. If the participant's estimates were affected by the anchors given and they picked numbers around the anchor, that is an indicator of anchoring heuristic usage.

To determine how much the participants' mood affected their anchoring usage, I needed to know how much the anchors influenced them. To compute that number, I first relabeled all of the 11 variables or questions (e.g., A1L = question 1, low anchor. A1H = question 1, high anchor). Second, I created a composite variable (e.g., A1 = sum (a1l, a1h) - the sum of the low and high anchor for A1), which was done for all 11 variables. Third, these composite variables were standardized (e.g., ZA1) and separated into standardized variables by low/high (e.g., ZA1L = the standardized value for A1 Low anchor, ZA1H = the standardized value for ZA1 high anchor). Then the means standardized low (e.g., Anchoring Low = mean (ZA1L, ZA2L, ZA3L, ZA4L, ZA5L, ZA6L, ZA7L, ZA8L, ZA9L, ZA10L, ZA11L)) and high (e.g., Anchoring High = mean (ZA1H, ZA2H, ZA3H, ZA4H, ZA5H, ZA6H, ZA7H, ZA8H, ZA9H, ZA10H, ZA11H)) anchor scores were computed. Lastly, the difference between high and low anchor means were computed (Anchoring Difference = Anchoring High – Anchoring Low). This number (Anchoring Difference) became the final dependent variable. Higher numbers meant that the person used the anchor. That is, they wrote down rather high numbers if the high anchor was present and relatively low numbers if the low anchor was present.

After completing this anchoring measure, participants were thanked and read a debriefing statement.

Chapter 3

Study 1 Results

To determine whether the self-reported mood altered the use of the availability and anchoring heuristic, I conducted a series of regression analyses. Table 1 displays the means and the correlations among the key variables.

Table 1. Study 1: M (Means), SD: (Standard Deviations), Correlations, and Pearson's r values between the variables for happiness, sadness, overall mood, Availability Measure, and Anchoring Difference

	M (SD)	Happy	Sad	Overall Mood	Availability Measure	Anchoring Difference
Happy	2.63 (.65)	1.00				
Sad	1.84 (.69)	-.34***	1.00			
Overall Mood	6.55 (1.89)	.62***	-.63***	1.00		
Availability Measure	10.4 (2.24)	.07	-.01	.02	1.00	
Anchoring Difference	.31 (.28)	.17	-.12	.20*	_	1.00

Note. $p < .05$, *** $p < .001$.*

Availability Heuristic

To examine the use of the availability heuristic, I first conducted a regression analysis in which overall mood (feelings of pleasantness) was entered into the regression model to predict

how many male vs. female names respondents reported seeing[1]. In contrast to the prediction that mood alters use of the availability heuristic, overall mood did not promote the use of the availability heuristics, (b = .02, se = .10, t (130) = .22, p = .83, η^2 = .00, η^2p = .00).

Happiness and Sadness Analysis (FMIS). The next step was to examine the effects of happiness and sadness on the use of the availability heuristic. I conducted another series of regression analysis like the ones done with the overall mood (except with switching the overall mood variable with both happiness and sadness in one regression analysis and all interactions were examined). In contrast with predictions, neither happiness, (b = .06, se = .08, t (127) = .80, p = .43, η^2 = .01, η^2p = .01), nor sadness, (b = .01, se = .08, t (127) = .12, p = .91, η^2 = .00, η^2p = .00), nor their interaction, (b = -.004, se = .02, t (127) = -.15, p = .88, η^2 = .00, η^2p = .00), altered the use of the availability heuristic.

Anchoring Heuristic

Regarding anchoring heuristics, I first conducted a regression analysis which overall mood was entered into the regression model to predict the usage of the anchors in the questions to make estimates. Overall mood did promote the use of the anchoring heuristic, (b = .03, se =

1. Because of how I computed this DV, condition (male or female name condition), does not matter. I did rerun the analyses on total female names listed to determine whether people thought more female names were famous in the famous female than famous male condition. This effect was found, indicating that the manipulation was successful (p < .001).

.01, t (130) = 2.36, p = .02, η^2 = .04, $\eta^2 p$ = .04), but in contrast to predictions, people in more positive moods relied on the anchoring heuristic more than those in less positive moods.

Happiness and Sadness Analysis (FMIS). Then, to examine the effect of state happiness and sadness, a similar regression analysis was done (replacing overall mood with both happiness and sadness in one regression analysis and all interactions were examined). In contrast to the prediction, neither happiness, (b = .02, se = .01, t (125) = 1.58, p = .12, η^2 = .02, $\eta^2 p$ = .02), nor sadness, (b = - .01, se = .01, t (125) = -.60, p = .55, η^2 = .003, $\eta^2 p$ = .003), nor their interaction, (b = .002, se = .003, t (125) = .06, p = .57, η^2 = .003, $\eta^2 p$ = .003), influenced the use of the anchoring heuristic.

Chapter 4

Study 1 Discussion

The goal of this study was to determine if positive moods promoted the availability heuristic, and sad moods promoted the anchoring heuristic. I did a series of regression analyses to evaluate the prediction regarding the effect of happy/sad mood and the overall mood on the usage of these heuristics. In contrast to predictions, overall mood (feelings of pleasantness) did not significantly alter the use of the availability heuristic. Happiness and sadness also did not increase the use of the availability heuristic, nor was there a significant interaction.

Regarding anchoring heuristics, as overall positive mood increased, so too did the use of anchoring heuristic. This finding directly contradicts prior work and our prediction, which suggests that sadness would increase the use of this heuristics. Happiness, sadness, and their interaction also did not influence the use of the anchoring heuristic.

Many of the findings did not match the predictions or prior research. Therefore, I questioned the strength of a natural mood and the natural sense of sadness or happiness to have a promoting effect on the usage of the heuristics. Also, as described before, there was not an outcome of happiness, increasing the usage of availability heuristics and sadness, increasing the usage of anchoring heuristics. Therefore, I decided to do a second study.

So, as said before, I used the effect of natural affect in this study. The null effects of this study might have occurred because the mood was not salient. Thus, to examine this issue, in study 2, I manipulated saliency to see if it was a factor. Through this condition, the mood task either appeared at the end or the beginning of the second study.

In addition to the saliency condition, I looked at state (how the participants feel right now) and trait (how the participants feel in general) mood. State and trait mood were added to address whether it is a particular momentary state or a typical trait of a person that affects the usage of heuristics.

Lastly, it is important to keep in mind the sample size. In Study 2, I decided to increase the power to be better able to detect smaller effect sizes (increasing power to detect .24 correlation to .15).

Chapter 5

Study 2 Method

In this study, I examined how mood (state and trait) and saliency of mood influence the use of the availability and anchoring heuristics. To measure mood, participants indicated their

state and trait mood either before or after the availability and anchoring heuristic tasks. The placement of the mood manipulation served as my manipulation of saliency, with mood being more salient if measured before vs. after the dependent variables.

Participants. Participants were undergraduate students at the Pennsylvania State University (332 with 175 males and 157 females) between the ages of 18-25, who received course credit for participating in the study. An N = 332 can detect a correlation of .153, which is more power than study 1. Respondents reported their ethnicities as: 53 (16.01%) Asian/ Asian American/ Pacific Islander, 18 (5.44%) Black/ African American, 27 (8.16%) Latino/ Hispanic American, 3 (.91%) Native American/ American Indian, and 230 (69.49%) Caucasian. All except 30 participants were primary English speakers.

Procedure. Participants signed-up online through Penn State's Department of Psychology's Subject Pool system to participate. They came to the lab room and were told that they are participating in a study that measures their ability to make estimates. After reading the informed consent and answering the demographic questions about their gender, age, ethnicity, and primary language, the participants were randomly separated into two conditions. To manipulate saliency, in the salient condition, respondents completed the mood measure at the beginning of the study. In the non-salient condition, they completed it at the end of the study. The participants completed the same measures of mood as they did in Study 1 (see Appendix B for study 2 supplemental materials). To assess state vs. trait mood, respondents first rated the measures in terms of how they feel "right now" to assess state mood, and then they rerated their mood based on how they "typically" feel to assess trait mood.

I used the same availability and anchoring tasks as in Study 1. Likewise, at the end of the study, the participants were given a debriefing statement before leaving the lab room.

Chapter 6

Study 2 Results

To determine whether the self-reported mood altered the use of the availability and anchoring heuristic, I conducted a series of regression analyses. The self-reported mood was either based on the state of the participants or the trait of the participants. Table 2 displays the means and the correlations among the key variables.

Table 2. Study 2: M (Means), SD: (Standard Deviations), Correlations, and Pearson's r values between the variables for happiness, sadness, overall mood, Availability Measure, and Anchoring Difference.

	M (SD)	State: Happy	State: Sad	Trait: Happy	Trait: Sad	Overall Mood	Availability Measure	Anchoring Difference	Saliency Condition
State: Happy	9.85 (2.42)	1.00							
State: Sad	7.57 (2.74)	-.40***	1.00						
Trait: Happy	11.8 (2.38)	.57***	-.27***	1.00					
Trait: Sad	7.81 (2.46)	-.26***	.66***	-.38***	1.00				
Overall Mood	6.39 (1.66)	.63***	-.57***	.45***	-.38***	1.00			
Availability Measure	9.94 (2.18)	-.05	.04	-.01	-.04	.01	1.00		
Anchoring Difference	.09 (.36)	.03	-.04	.02	.06	.06	_	1.00	
Saliency Condition	.49 (.50)	.12*	-.06	.06	-.03	.09	-.04	.03	1.00

*Note. * $p < .05$, *** $p < .001$.*

Availability Heuristic

To examine the use of the availability heuristic, I first conducted a regression analysis in which their overall mood (feelings of pleasantness) and the saliency manipulation (emotion task appearing at the beginning of the survey as 1 and emotion task appearing at the end of the survey as 0) were entered into the regression model. This analysis was done to predict how many male vs. female names respondents reported seeing[2]. Unlike Study 1, overall mood did not promote the use of the availability heuristics, (b = .02, se = .07, t (327) = .26, p = .79, η^2 = .00, η^2p = .00), neither did its interaction with the saliency manipulations (b = -.008, se = .15, t (327) = -.06, p = .96, η^2 = .00, η^2p = .00).

State Mood Analysis. Furthermore, to examine the effects of state happiness (α =.85) and state sadness (α =.89) on the usage of the availability heuristic, I conducted another series of regression analysis like the ones done with the overall mood (except with switching the overall mood variable with both state happiness and sadness in one regression analysis and all interactions were examined). In contrast to the prediction, neither state happiness (b = -.05, se = .05, t (324) = -.95, p = .34, η^2 = .001, η^2p = .001) nor state sadness (b = -.02, se = .05, t (324) = -.37, p = .71, η^2 = .00, η^2p = .00) influenced the use of the availability heuristic. The saliency manipulation also had no effect (b =.14, se = .26, t (324) = .57, p = .57, η^2 = .001, η^2p = .001). There was no significant interaction effect for state happiness and saliency (b = 0.11, se = .11, t (323) = .98, p = .33, η^2 = .003, η^2p = .003), nor for state happiness and state sadness (b = -.02, se = .02, t (323) = -1.25, p= .21, η^2 = .01, η^2p = .01).

2. The male/female name effect was found.

On the other hand, there was a significant interaction between state sadness and saliency (b = .24, se = .10, t (323) = 2.33, p = .02, η^2 = .02, η^2p = .02). (see Figure 1). In it, with the mood task appearing first and high in sadness, and the mood task appearing last and low in sadness, increased the use of availability heuristics. Also, as Figure 1 illustrates, with the mood task appearing first and low in sadness, and the mood task appearing last and high in sadness, the less availability is used. Recall, that saliency (mood first) should increase mood effects. Here, as saliency increased, so too did the effect of sad moods on the use of the availability heuristic. However, in contrast to the prediction that sadness would reduce the use of the availability heuristics, these data indicate that when sadness is salient, it increases the use of the availability heuristic, and when it is not salient, then as in prior work, as sadness increases, the use of the availability heuristic decreases.

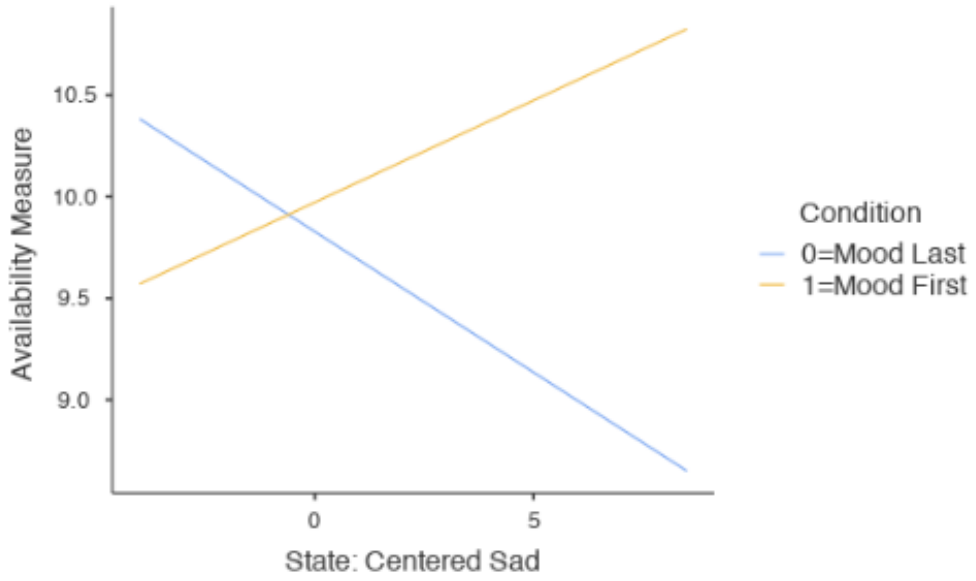

Figure 1. Estimated marginal means. Interaction of centered state sadness and mood condition (0: mood task appearing at the end of the study, 1: mood task appearing at the beginning of the study) plotted against Availability Measure (availability dependent variable measure). The Blue line represents the lack of saliency for the mood, and the yellow represents the saliency of the mood.

The interaction between state happiness, state sadness, and the saliency condition was also significant (b = .12, se = .04, t (323) = 3.34, p <.001, η^2 = .03, η^2p = .03) (see Figure 2). The sadness and saliency interaction was the most apparent when the participant was high rather than low in happiness. In this interaction, in high happiness and sadness (ambivalence), the availability heuristics was used more when mood is salient but not when it is not salient. On the other hand, when people were high in happiness, but low in sadness, then they used the heuristic when mood was not salient more than when it was salient. Though the effect of high happiness on availability was predicted, I expected saliency to promote more usage of availability than lack of saliency.

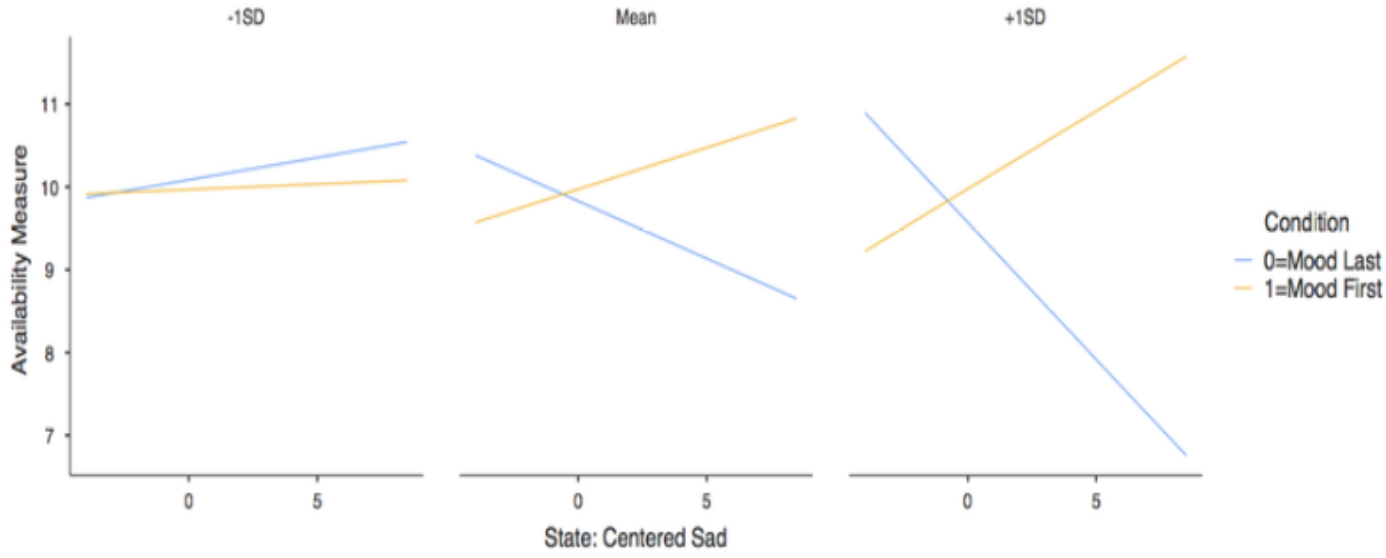

Figure 2. Estimated marginal means. Interaction of centered state sadness, centered state happiness, and mood condition (0: mood not salient, 1: mood salient) plotted against Availability Measure (availability dependent variable measure). The first graph (-1SD) is low happiness, the middle graph is mean happiness, and the last graph (+1SD) is high happiness. The blue line represents the lack of saliency for the mood, and the yellow represents the saliency of the mood.

Trait Mood Analysis. Moving on to trait happiness (α = .86) and trait sadness (α = .86), again same regression analysis was done (this time using both trait happiness and sadness instead

of state and all interactions were examined). In contrast with predictions, trait happiness did not promote the use of the availability heuristic, (b = -.02, se = .06, t (322) = -.37, p = .71, η^2 = .00, η^2p = .00), nor did trait sadness, (b = -.04, se = .05, t (322) = -.73, p = .47, η^2 = .002, η^2p = .002). The saliency manipulation also had no effect, (b =-.09, se = .26, t (322) = -.34, p = .73, η^2 = .00, η^2p = .00). There was no significant interaction effect for trait happiness and saliency (b = -.03, se = .11, t (321) = -.23, p = .82, η^2 = .00, η^2p = .00), nor for trait sadness and saliency, (b = .09, se = .11, t (321) = .80, p = .42, η^2 = .002, η^2p = .002). The interaction between trait happiness and sadness, (b = .01, se = .02, t (321) = .65, p = .51, η^2 = .001, η^2p = .001), and the interaction between trait happiness, trait sadness, the saliency manipulation, (b = .03, se = .04, t (321) = .66, p = .51, η^2 = .001, η^2p = .001) were not significant. Thus, there was no significant effect of trait mood or saliency on the use of the availability heuristic.

Anchoring Heuristic

Regarding anchoring heuristics, I also conducted a regression analysis in which overall mood and the saliency manipulation were entered into the regression model to predict the usage of the anchors in the questions to make estimates. Unlike Jacowitz and Kahneman (1995), overall mood did not promote the use of the anchoring heuristics, (b = .01, se = .01, t (322) = .95, p = .34, η^2 = .003, η^2p = .003). The overall mood's interaction with the saliency manipulation also did not promote the use of anchoring heuristic, (b = .01, se = .02, t (322) = .23, p = .82, η^2 = .00, η^2p = .00).

State Mood Analysis. Then, to determine the effect of state happiness (α = .85) and state sadness (α = .89), a similar regression analysis was done (replacing overall mood with both state

happiness and sadness in one regression analysis and all interactions were examined). In contrast to the prediction, neither state happiness, (b = -.002, se = .01, t (319) = -.24, p = .81, η^2 = .00, η^2p = .00) nor state sadness (b = -.01, se = .01, t (319) = -1.30, p = .20, η^2 = .005, η^2p = .005) influenced the use of the anchoring heuristic. The saliency manipulation also had no effect (b =.01, se = .04, t (319) = .34, p = .73, η^2 = .00, η^2p = .00). There was no significant interaction effect for state happiness and saliency (b = .01, se = .02, t (319) = .50, p = .62, η^2 = .001, η^2p = .001), nor for state sadness and saliency (b = .002, se = .02, t (319) = .12, p = .91, η^2 = .00, η^2p = .00).

There was, however, a significant interaction between state happiness and sadness (b = -.006, se = .003, t (318) = -2.02, p <.05, η^2 = .01, η^2p = .01) (see Figure 3). In it, being high in happiness and low in sadness or being high in sadness and low in happiness, promoted the use of anchoring heuristics. As depicted by the yellow line in Figure 3, the biggest effect appears in the high happy group, such as they move from low sadness to high sadness, their use of the anchoring heuristic diminishes.

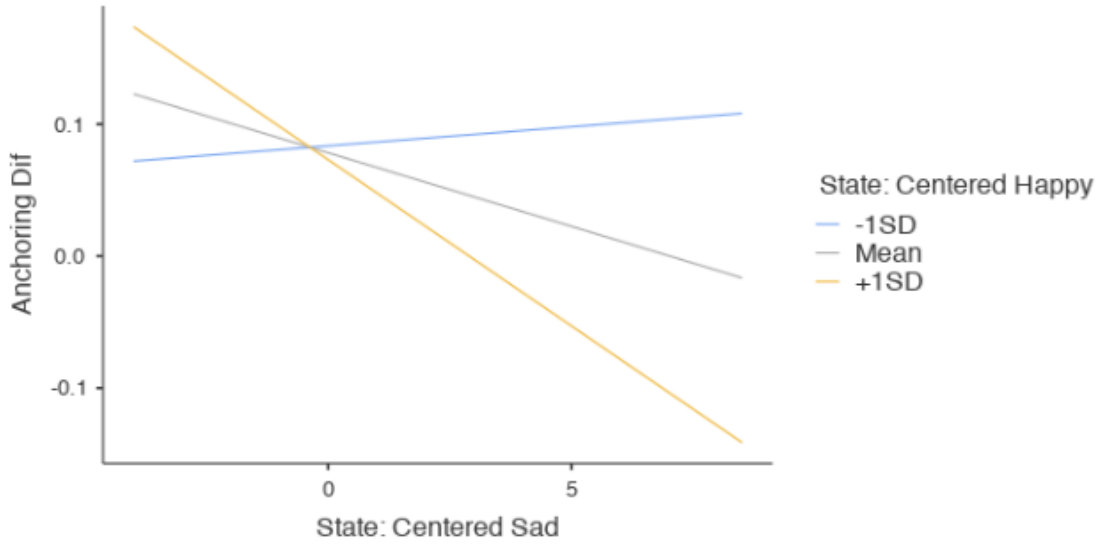

Figure 3. Estimated marginal means. Interaction of centered state sadness with centered state happiness plotted against anchoring difference. The gray line represents the mean happiness. The blue line is one standard deviation below the mean for happiness, and the yellow line is one standard deviation above the mean for happiness.

Lastly, the interaction between state happiness, state sadness, and the saliency manipulation, (b = .00, se = .01, t (318) = -.12, p = .87, η^2 = .001, η^2p = .001) was not significant.

Trait Mood Analysis. To examine the effect of trait happiness (α = .86) and trait sadness (α = .86) a similar regression analysis was conducted to the state analyses, but overall mood was replaced with both trait happiness and sadness and all interactions were examined). These analyses revealed that neither trait happiness, (b =.01, se = .01, t (321) = .81, p = .42, η^2 = .002, η^2p = .002), nor trait sadness, (b = .01, se = .01, t (320) = 1.13, p = .26, η^2 = .004, η^2p = .004), influenced the use of the anchoring heuristic. The saliency manipulation also had no effect, (b =-.002, se = .04, t (319) = -.05, p = .96, η^2 = .00, η^2p = .00). There was no significant interaction effect for trait happiness and saliency, (b = -.01, se = .02, t (318) = -.64, p = .52, η^2 = .001, η^2p = .001), nor for trait sadness and saliency, (b = -.03, se = .02, t (317) = -1.47, p = .14, η^2 = .01, η^2p = .01). There also was no significant interaction between trait happiness and sadness (b = -.002,

se = .003, *t* (317) = -.79, *p* = .43, η^2 = .002, $\eta^2 p$ = .002), nor between trait happiness, trait sadness, and the saliency manipulation, (*b* = -.01, *se* = .01, *t* (317) = -1.50, *p* = .14, η^2 = .01, $\eta^2 p$ = .01). Thus, similar to the analyses on the availability data, trait mood had no effect on respondents' use of heuristics.

Chapter 7

Study 2 Discussion

The goal of this study was to determine if saliency of state or trait moods influences mood effects on the availability heuristic and the anchoring heuristic.

In terms of the effect of mood on the availability heuristic, in contrast to the predictions, state and trait happiness did not promote the use of availability heuristic. Consistent with predictions, an interaction between saliency and state sadness revealed that saliency resulted in people in sad moods being more likely to use the availability heuristic. This finding supports the hypothesis that saliency matters; however, the data are in contrast to prior work, in that sadness promoted rather than inhibited reliance on this heuristic when it was salient. Trait sadness did not promote the use of the availability, and the saliency manipulation did not make a difference.

Furthermore, in contrast to the predictions, state and trait happiness and sadness did not promote the use of anchoring heuristic. Also, the saliency manipulation did not make a difference, perhaps because the anchoring heuristic involves more thought. Though an interaction between state happiness and sadness illustrated that high happiness with low sadness and high sadness with low happiness promoted anchoring heuristics usage. So, unlike the findings of past literature that feeling predominately sad should decrease anchoring usage, both

feeling predominately happy or sad increased the usage of anchoring. Also, high happiness and high sadness together decreased people's use of the anchoring heuristic. This is the state of ambivalence, and it suggests that an increase in a specific mood has a greater effect in increasing anchoring heuristics usage than being happy and sad together. Therefore, a specific mood needs to be identifiable to the person for it to affect anchoring usage.

Chapter 8

General Discussion

These experiments examined whether everyday feelings influenced people's usage of heuristics and, in Study 2, whether saliency of those feeling and if those feelings occurred at the state or trait level altered this usage. Based on prior literature, it was hypothesized, regardless of the state or trait level of mood, that people in a naturally happy mood would be more likely than those in a naturally sad mood to use the availability heuristic. On the other hand, I expected that people in a naturally sad mood would be more likely than those in a naturally happy mood to use anchoring heuristics. I also hypothesized that, as saliency of mood increases, so too will the effect of mood on heuristics.

In contrast to the predictions, happiness alone did not promote the use of availability heuristic in either Study 1 or 2 (for both state and trait). Also, in contrast to the predictions, in Study 1, people in a more positive mood relied more on anchoring heuristics than those in a less positive mood. In Study 2, state sadness and saliency interacted. This result was consistent with predictions, in that saliency increased mood effects. When sadness was salient, people were more likely to rely on the availability heuristic usage than when it was not salient. However, it was

also inconsistent with predictions, in that prior work suggests that sadness would reduce rather than enhance people's reliance on the availability heuristic.

Prior work has only examined happy vs. sad separately from one another, but in this work, by measuring them both, I was also able to look for interactive effects. Happiness, sadness, and their interaction did not promote the use of the anchoring heuristic in Study 1. On the other hand, in Study 2, state happiness and sadness interacted, as both high happiness with low sadness and high sadness with low happiness promoted anchoring heuristics usage. That is, when people were feeling predominately happy (little sadness) or predominately sad (little happiness), they were more likely to use anchors to make their estimates. Another finding from this interaction, which was not predicted, was high happiness and high sadness together (ambivalence) decreased people's use of the anchoring heuristic. This finding means that experiencing an increase in a particular mood leads to more anchoring heuristics usage than being in a state of ambivalence. Though I had not created a prediction in the hypothesis about the effect of a particular mood versus ambivalence, this finding does contribute to supporting our predictions since I had said that the saliency of a mood would increase heuristics usage. In a state of ambivalence, no particular mood is salience because of the fixed range of feeling involved; therefore, it makes sense that being in this state would not promote anchoring usage as much. However, this idea still needs to be tested in additional research.

Moving on to trait mood, I found that the trait effect did not produce any significant results. Trait happiness and sadness did not promote the use of the availability or anchoring heuristics, and the saliency manipulation did not make a difference. The lack of effect by trait mood can be explained in terms of saliency. Trait mood describes a characteristic long-term

mood rather than momentary one; it is not as salient, and increased saliency does not make a difference again because the participant may expect to be in his/her general trait.

Furthermore, there were some limitations in this study. For example, this work might have limited external validity, in that only college students were used as participants, resulting in a not very diverse sample in terms of age and education level. Thus, it is unclear how it would generalize to noncollege samples, more diverse groups, or older groups. To make sure that this representation would exist, in the future, the type of sample would need to expand to not just college students, but a random sample of people with diversity of age, race, and religion. For instance, there is evidence of age-related changes in the use of mood in that older people are more likely to recall happy memories (Singer, Rexhaj, & Baddeley, 2007). Different religions or cultural practices may differentially emphasize the saliency of emotions. Therefore, with these possible differences within groups of people, the effects of emotion saliency on heuristics usage may change as well. In addition to the sample, this study concerned naturally occurring mood (not induced in lab), which is more consistent in regards to how mood might function outside of the lab.

In addition to the sample, it would be worthwhile to extend this work by using different types of tasks that involve the use of the availability and anchoring heuristics. For instance, the availability heuristic task that was used in this study was modeled after Amos Tversky and Daniel Kahneman's (1973) study on the fame name task. This is a new task to examine with regard to mood and heuristic use. This task has not been used before to assess the role of mood on the availability heuristic. Thus, a feature of the task that might be responsible for the unusual findings of this study is that the names that the participants read may elicit a mood in them that might be different from what they report their mood to be before or after the study. So, it is

perhaps that the effects of mood depend on the type of availability task employed. As a further extension for the availability task in a replication study, the word-construction problems task in Tversky & Kahneman's (1973) paper could be used. Also, other possible anchoring tasks could be employed, such as the legal decision-making task, in which participants were exposed to a sentencing anchor and needed to decide whether it is too low, too high, or just right (see Englich & Soder, 2009). By using these other methodologies, researchers can evaluate whether the same results would generalize to different measures. This extension is essential in knowing whether or not the findings of these studies are reliable and possibly finding out why some results were mixed and contradictory with extant literature (e.g., in Study 1 as positive mood increased, people used more anchoring heuristic. This is in contradiction to the past literature which finds that sadness increases anchoring).

Lastly, it worth mentioning the implications of this study. Even though heuristics can be useful when needing to make quick decisions, intuitive thinking is not always going to help to make the best judgments under uncertainty (Moutier & Houde, 2003). Therefore, it also becomes valuable to inform others when it would be appropriate and when it would not be appropriate to use them. These data reveal that mood can affect information processing by altering reliance on heuristics. For example, people should know that their natural state sadness or happiness can increase or decrease their usage of availability and anchoring heuristics (or intuitive thinking), while their natural trait sadness or happiness does not have such influence. However, as mentioned before, I did not find very consistent evidence of natural affect altering heuristic use. In fact, I found that mood had an influence that was often in the direction opposite of what was predicted. This highlights the fact that natural mood may affect judgment differently than lab induced mood, or that based on the information presented to the participant, the influence of

mood may become different from what is expected. Therefore, there a need to conduct more research to examine how naturally occurring moods might operate so that people can be accurately informed about how to make better and more logical decisions and stand up to their emotions and moods.

Appendix A

Study 1 Supplemental Materials

Methods

The Brief Mood Introspection Scale (BMIS) was used, containing 16 mood adjectives (Lively, Happy, Sad, Tired, Caring, Content, Gloomy, Jittery, Drowsy, Grouchy, Peppy, Nervous, Calm, Loving, Fed up, Active) (Mayer & Gaschke, 1988). From the BMIS, two of its factor-based subscales were assessed. First, the pleasant-unpleasant was assessed by adding the positively worded items for pleasant together (Lively, Happy, Caring, Content, Peppy, Calm, Loving, and Active, $\alpha = .85$), and also adding to that the reverse codded negatively worded items for unpleasant together (Sad, Tired, Gloomy, Jittery, Drowsy, Grouchy, Nervous, and Fed up, $\alpha = .82$). The second subscale was the arousal-calm subscale. This scale was formed by adding the positively worded items for arousal together (Lively, Sad, Caring, Gloomy, Jittery, Peppy, Nervous, Loving, fed up, Active, $\alpha = .74$), and also adding that the reverse codded negatively worded items for Calm together (Tired, and Calm, $\alpha = .60$).

Results

Availability Heuristic

Pleasant-Unpleasant and Arousal-Calm Analysis (BMIS). To examine the use of the availability heuristic, we first conducted a regression analysis in which both pleasant-unpleasant and arousal-calm was entered into the regression model to predict how many male vs. female

names respondents reported seeing[3], and all interactions were examined. All the findings were not significant (all: $p > .28$).

Anchoring

Pleasant-Unpleasant and Arousal-Calm Analysis (BMIS). Again, the same type of analysis as above was conducted, and all interactions were examined. All the findings were not significant (all $p > .23$).

Table 3. Study 1: M (Means), SD: (Standard Deviations), Correlations, and Pearson's r values between the variables for pleasant-unpleasant, arousal-calm, overall mood, Availability Measure, and Anchoring Difference.

	M (SD)	Pleasant-Unpleasant	Arousal-Calm	Overall Mood	Availability Measure	Anchoring Difference
Pleasant-Unpleasant	37.90 (5.87)	1.00				
Arousal-Calm	27.70 (4.81)	.94***	1.00			
Overall Mood	6.55 (1.89)	.08	.12	1.00		
Availability Measure	10.4 (2.24)	.07	.04	.02	1.00	
Anchoring Difference	.31 (.28)	.06	.03	.20*	_	1.00

*Note. * $p < .05$, *** $p < .001$.*

3. Because of how we computed this DV, condition (male or female name condition), does not matter. We did rerun the analyses on total female names listed to determine whether people thought more female names were famous in the famous female than famous male condition. This effect was found, indicating that the manipulation was successful ($p < .001$)

Appendix B

Study 2 Supplemental Materials

Results

Availability Heuristic

State Mood Analysis. The same type of analysis as overall mood was conducted (except with switching the overall mood variable with both state pleasant-unpleasant and state arousal-calm in one regression analysis and all interactions were examined). In contrast to the prediction, neither state pleasant-unpleasant (b = -.01, se = .09, t (323) = -.13, p = .90, η^2 = .00, η^2p = .00) nor state arousal-calm (b = -.0006, se = .10, t (323) = -.006, p = 1.00, η^2 = .00, η^2p = .00) influenced the use of the availability heuristic. The saliency manipulation also had no effect (b =.05, se = .27, t (323) = .20, p = .84, η^2 = .002, η^2p = .002). There was no significant interaction effect for state pleasant-unpleasant and saliency manipulation (b = -.31, se = .17, t (322) = -1.583, p = .07, η^2 = .01, η^2p = .01), nor for state arousal-calm and saliency manipulation (b = .34, se = .20, t (322) = 1.71, p = .09, η^2 = .01, η^2p = .01). There was also not a significant interaction between state pleasant-unpleasant and state arousal-calm (b =.003, se = .004, t (322) = .75, p = .45, η^2 = .002, η^2p = .002), nor between state pleasant-unpleasant and state arousal-calm and saliency manipulation (b = -.01, se = .007, t (322) = -1.76, p = .08, η^2 = .01, η^2p = .01).

Trait Mood Analysis. The same type of analysis as overall mood was conducted (except with switching the overall mood variable with both trait pleasant-unpleasant and trait arousal-calm in one regression analysis and all interactions were examined). As we predicted, trait pleasant-unpleasant promoted the use of availability heuristics (b = .19, se = .09, t (321) = 2.14, p = .03, η^2 = .01, η^2p = .01). On the other hand, trait arousal-calm (b = -.21, se = .11, t (321) = -1.84, p = .07, η^2 = .004, η^2p = .004) did not influenced the use of the availability heuristic. The

saliency manipulation also did not influence (b =-.07, se = .28, t (321) = -.25, p = .81, η^2 = .01, η^2p = .01). There was no significant interaction effect for trait pleasant-unpleasant and saliency manipulation (b = -.13, se = .18, t (320) = -.70, p = .45, η^2 = .02, η^2p = .03), nor for trait arousal-calm and saliency manipulation (b = .14, se = .22, t (320) = .62, p = .54, η^2 = .02, η^2p = .02). There was also not a significant interaction between trait pleasant-unpleasant and trait arousal-calm (b =.005, se =.005, t (320) = .92, p = .36, η^2 = .01, η^2p = .01), nor between trait pleasant-unpleasant and trait arousal-calm and saliency manipulation (b = -.008, se = .01, t (320) = -.77, p = .44, η^2 = .01, η^2p = .01).

Anchoring Heuristic

State Mood Analysis. The same type of analysis as overall mood was conducted (except with switching the overall mood variable with both state pleasant-unpleasant and state arousal-calm in one regression analysis and all interactions were examined). In contrast to the prediction, state pleasant-unpleasant did not influence the use of the anchoring heuristics (b = -.02, se = .01, t (318) = -1.62, p = .11, η^2 = .01, η^2p = .01). State arousal-calm did influence the use of the anchoring heuristic (b = .03, se = .02, t (318) = 2.10, p = .04, η^2 = .01, η^2p = .01). Saliency manipulation had no effect (b =.06, se = .04, t (318) = 1.33, p = .18, η^2 = .01, η^2p = .01). There was no significant interaction effect for state pleasant-unpleasant and saliency manipulation (b = -.006, se = .03, t (318) = -.22, p = .82, η^2 = .00, η^2p = .00), nor for state arousal-calm and saliency manipulation (b = .004, se = .03, t (318) = .11, p = .91, η^2 = .00, η^2p = .00). There was a significant interaction between state pleasant-unpleasant and state arousal-calm (b = .001, se = .0006, t (317) = 2.04, p = .02, η^2 = .02, η^2p = .02) (see Figure 4). High sense of pleasant-unpleasant and high sense of arousal-calm and low sense of pleasant-unpleasant and high sense of arousal-calm promotes the use of anchoring heuristics. Also, as Figure 4 illustrates, if a person

is high on pleasant-unpleasant and low arousal-calm the less anchoring heuristics they use. Similarly, if a person is low in pleasant-unpleasant and low arousal-calm the less anchoring they use.

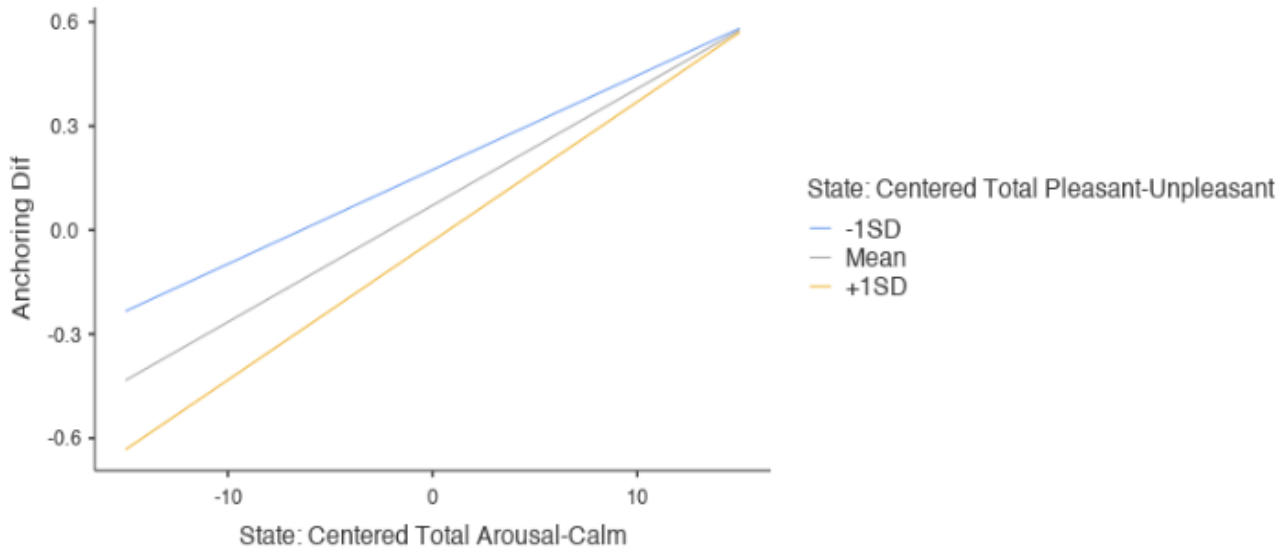

Figure 4. Estimated marginal means. Interaction of centered state Arousal-Calm with centered state Pleasant-Unpleasant plotted against anchoring difference. The gray line represents the mean between the two lines. The blue line is one standard deviation below the mean for Pleasant -Unpleasant, and the yellow line is one standard deviation above the mean for Pleasant-Unpleasant.

There was no significant interaction between state pleasant-unpleasant and state arousal-calm and saliency manipulation (b = -.002, se = .001, t (317) = -1.88, p = .06, η^2 = .01, η^2p = .01).

Trait Mood Analysis. The same type of analysis as overall mood was conducted (except with switching the overall mood variable with both trait pleasant-unpleasant and trait arousal-calm in one regression analysis and all interactions were examined). In contrast to our prediction, trait pleasant-unpleasant did not influence the use of anchoring heuristics (b = .02, se = .01, t (316) = 1.65, p = .10, η^2 = .01, η^2p = .01), nor did trait arousal-calm (b = -.02, se = .02, t (316) = -1.11, p = .27, η^2 = .004, η^2p = .004). The saliency manipulation also did not influence (b =.06, se = .05, t (316) = 1.39, p = .17, η^2 = .01, η^2p = .01). There was a significant interaction effect for

trait pleasant-unpleasant and saliency manipulation (b = -.08, se = .03, t (315) = -2.82, p = .005, η^2 = .02, η^2p = .03). (see Figure 5). In the mood first condition, high sense of pleasant-unpleasant decreased the use of anchoring and low sense of pleasant-unpleasant increased the use of anchoring. In the mood last condition, high sense of pleasant-unpleasant increased the use of anchoring and low sense of pleasant-unpleasant decreased the use of anchoring.

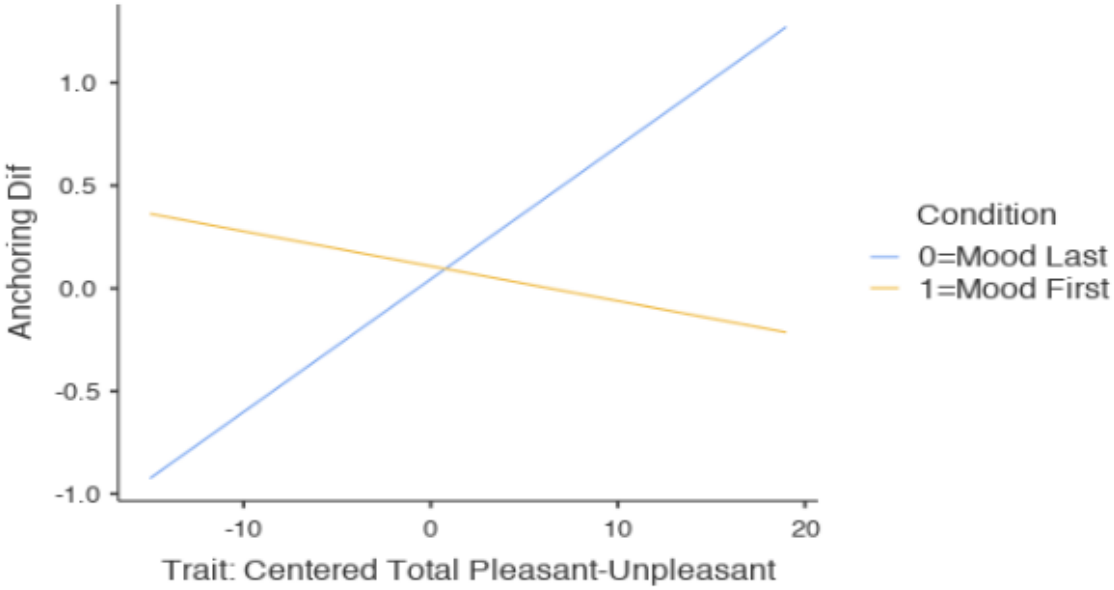

Figure 5. Estimated marginal means. Interaction of centered trait Pleasant-Unpleasant and saliency condition plotted against anchoring difference. The blue line is the mood last condition, and the yellow line is the mood first condition.

The interaction between arousal-calm and saliency manipulation is also significant (b = .09, se = .04, t (315) = 2.45, p = .02, η^2 = .02, η^2p = .02) (see Figure 6). In the mood first condition, a high sense of arousal-calm increased the use of anchoring, and a low sense of arousal-calm decreased the use of anchoring. In the mood last condition, a high sense of arousal-calm decreased the use of anchoring, and a low sense of arousal-calm increased the use of anchoring.

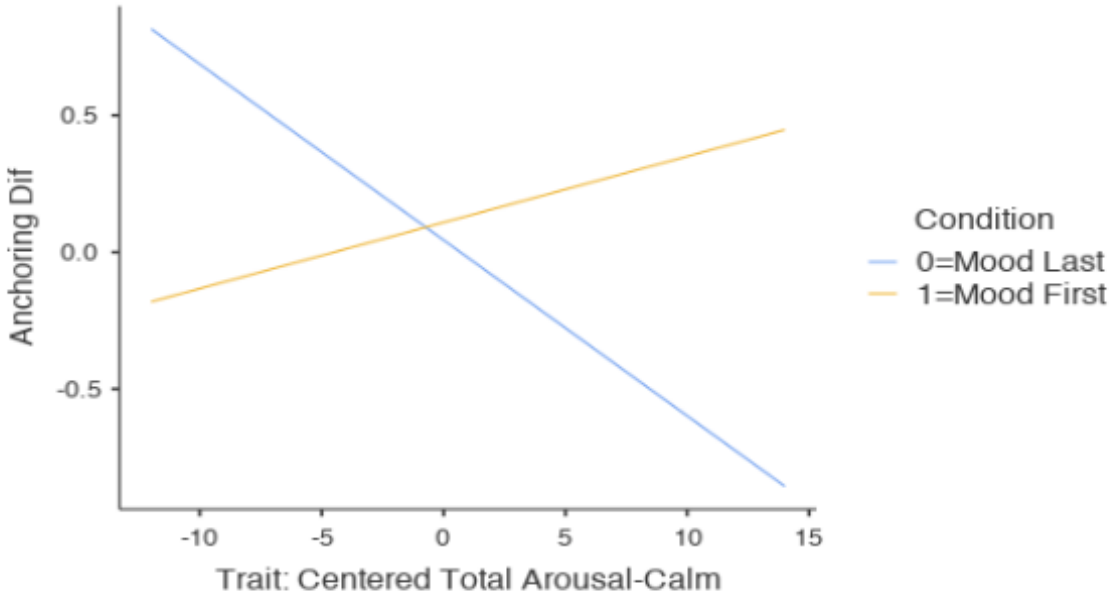

Figure 6. Estimated marginal means. Interaction of centered trait arousal-calm and saliency condition plotted against anchoring difference. The blue line is the mood last condition, and the yellow line is the mood first condition.

There was not a significant interaction between trait pleasant-unpleasant and trait arousal-calm (b =.001, se =.0008, t (315) = 1.59, p = .11, η^2 = .01, $\eta^2 p$ = .01), nor between trait pleasant-unpleasant and trait arousal-calm and saliency manipulation (b = -.003, se = .002, t (315) = -1.87, p = .06, η^2 = .01, $\eta^2 p$ = .01).

Table 4. Study 2: Pearson's r values between the variables for state and trait pleasant-unpleasant, state and trait arousal-calm, overall mood, Availability Measure and Anchoring Difference, and saliency condition.

	M (SD)	State: Pleasant-Unpleasant	Trait: Pleasant-Unpleasant	State: Arousal-Calm	Trait: Arousal-Calm	Overall Mood	Availability Measure	Anchoring Difference	Saliency Condition
State: Pleasant-Unpleasant	39.00 (4.64)	1.00							
Trait: Pleasant-Unpleasant	42.30 (4.47)	.59***	1.00						
State: Arousal-Calm	28.70 (3.92)	.95***	.53***	1.00					
Trait: Arousal-Calm	31.60 (3.59)	.59***	.95***	.56***	1.00				
Overall Mood	6.39 (1.66)	.08	.12*	.01	.07	1.00			
Availability Measure	9.94 (2.18)	-.01	.07	-.01	.04	.01	1.00		
Anchoring Difference	.09 (.36)	.06	.11	.10	.09	.06	_	1.00	
Saliency Condition	.49 (.50)	.03	.04	.02	.04	.09	-.05	.03	1.00

*Note. * $p < .05$, *** $p < .001$.*

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ACADEMIC VITA

Helia Hosseinpour
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EDUCATION

Pennsylvania State University **University Park, PA**
College of the Liberal Arts | *Bachelor of Science in Psychology-Neuroscience* Graduation*: May 2020*
Smeal College of Business | *Entrepreneurship and Innovation (New Ventures) Minor*
Schreyer Honors College

HONORS/AWARDS

Psi Chi Honors Society

- Gained third placement for a research proposal poster presentation on the *Effect of Mood and Motive on Usage of Availability Heuristics in Thinking Processes* at the Psi Chi Honor Society Research Conference.

Paterno Fellows Program

- Entered the honors program in the College of the Liberal Arts through which gained enhanced experience in ethics, service, leadership, communication, global awareness, and research.

Take the Lead Campaign

- Chosen, as a student leader to appear on a university-wide poster campaign to encourage students to make healthy decisions and represent Penn State by becoming involved and standing up for themselves and others.

Agricultural SpringBoard Competition

- Worked on an entrepreneurial project by doing marketing and competitor analysis on an anaerobic digester scaled down for restaurant-level use, allowing restaurants to cook dinner with the gas produced from the leftovers of the previous meals.

Phi Eta Sigma Honors Society

- Chosen a first-year student to enter this honor society for high GPA and Academic Excellence.

RELEVANT/ LEADERSHIP EXPERIENCE

Developmental Personality Neuroscience (DEPENd) Laboratory **University Park, PA**
Research Assistant (Dr. Michael Hallquist's Lab) *January 2017- March 2018*

- Quality checked Functional magnetic resonance imaging (fMRI) and analyzed the participants' physiological data to check for any errors in the brain's images.
- Screened and scheduled participants and ran experimental sessions.
- Studied the brain's development in areas of emotion, personality, behavior, and decision making.

Feelings, Behavior, & Information Processing (FBIp) Laboratory **University Park, PA**
Research Assistant (Dr. Karen Gasper's Lab) *January 2018- Present*

- Managed group sessions for research studies.
- Worked with the lab director to run two studies that focus on the effect of affect on the usage of availability and anchoring heuristics.

Presidential Leadership Academy **University Park, PA**
Member *April 2017- Present*

- Took leadership classes led by the president of the university and Dean of the Schreyer Honors College at Penn State.
- Took educational trips to different parts of the United States, interacting with policymakers and large corporations.
- Worked with Peers to create a policy regarding the implementation of a carbon tax for businesses.

University Park Undergraduate Association (UPUA). **University Park, PA**
At-Large Representative, Freshmen Council *August 2016 – March 2018*

- Collaborated with administrators to better students' lives.
- Increased emergency management procedures at the university.
- Advocated for mental health awareness.
- Wrote letters to Pennsylvania House of Representatives about university appropriations and student rights.

Community Diversity Liaison *April 2017 – March 2018*

- Represented UPUA at the Community Diversity Group (CDG) and Community and Campus in Unity (CCU), which are organizations at State College that promote diversity and inclusion.
- Worked with these organization alongside Penn State's administration to create a business diversity training for the businesses downtown State College.
- Collaborated in creating a banner campaign to promote diversity throughout the university and the Borough.

College of the Liberal Arts Representative to the UPUA and Student Senator to the Faculty Senate, Liberal Arts Undergraduate Council Executive Board Member *March 2018 - Present*

- Worked with the University Faculty Senate to ensure the academic rights of the students.
- Created plans for a potential textbook prices database, which can help students find out about the costs of their textbooks while scheduling for classes.
- Created plans for the establishment of graduate, law, and medical school prep courses intended to help students through their application process for higher education.

The Democratic Coordinated Presidential Campaign of 2016 **State College, PA**
Organizing Fellow and Intern *August 2016- November 2016*

- Recruited volunteers and led them through canvassing shifts.
- Coordinated voter registration drives and phone banks.
- Collaborated in organizing speaker events for senators and ambassadors such as Tim Kaine.

Staging Location Leader and Canvassing Captain *October 2016- November 2016*

- Trained other organizing fellows and volunteer leaders for the mass canvassing outreaches during the *Get Out to Vote* effort.

American Psychological Association Annual Convention **Washington, D.C.**
Participant *August 3-6, 2017*

- Attended lectures and symposiums in addition to the events of the American Psychological Association of Graduate Students.

Global Brigades **Panama**
Panama Legal Empowerment Brigade *May 13-19, 2018*

- Learned about family legal cases, indigenous tribal laws, and legal empowerment tools.
- Worked on a family legal case, helping a mother who could not afford legal fees, and presented the case successfully to the local judge.

WORK EXPERIENCE

Office for Student Orientation and Transition Programs **University Park, PA**
Orientation Leader *December 2016- January 2018*

- Collaborated in running the orientation program.
- Gave presentations to thousands of students about their transition processes to Penn State.
- Led discussion panels to answer any questions that parents and guardians of new Penn State students had.