The Barnum Effect and Dissonance in Perceived Personality Descriptions

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Abstract

This study examined the willingness of people to accept generalized personality descriptions in accordance with the Barnum effect and Self-Verification Theory, and whether positivity and extremity within the content of the descriptions would have an effect on participant acceptance. Participants (n=120) from the University of Texas campus and public places in Austin were recruited to answer a short personality questionnaire. They received one of four generalized personality descriptions that were either positive, negative, positive extreme, or negative extreme descriptions. Participants then rated the test's accuracy at describing their personality characteristics. The self-rating scale was from 1-10, with 10 being the most accurate. The results indicated statistically significant main effects of positivity in the personality descriptions; participants awarded higher accuracy ratings to the positive non-extreme results and positive extreme results. We found no significant main effect of extremity on participant accuracy ratings. Results suggest that a method of random sampling for recruitment of participants is needed, along with a more sensitive measure of accuracy rating.

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Personality quizzes are everywhere ever since mainstream media channels popularized them. Buzzfeed, Facebook, and teen magazines provide outlets for this guilty pleasure. People are often classified as a certain personality "type." These generalizations are often relied on in respect to career guidance, interpersonal relationships, and self-identity. One branch of personality descriptions are Horoscopes. Although modern science has proven that the use of birth date as a personality indicator is dubious, many people believe in astrology's validity. The reason most people find the results of such personality assessments credible has to do with the generalized responses. The personality assessments typically are so broad and ill defined that people can relate to them easily. A universally valid personality description is likely to be accepted as an accurate measure of a person's personality due to the tendency for people to consider their own personality characteristics as inherently unique in themselves. They often remain oblivious to fact that the characteristics are often present in other people as well. Our study examined people's acceptance of personality feedback and potential factors that could lead to higher levels of acceptance because people place more and more weight behind personality tests nowadays. Career counselors refer job hunters to the Myers-Briggs Type Indicator to provide further guidance and insight into what personality type the person is; and furthermore, what career field they are best suited for. Self-proclaimed "love gurus" and relationship counselors suggest that couples take tests that will tell them what they should look for in a partner, or what they value most from a significant other. Tests like these place people into personality "types," which is problematic because there are no valid standardized personality types to place people in based off of a questionnaire they fill out. Personality is a turbulent concept. Personality tests often only capture a snapshot of someone's personality at that given

time, so they fail to be acute measures of the entirety of someone's personality. Some people place a lot of weight on the feedback they get, and they don't question the validity of the tests.

The goal of this study is to explore how the type of personality feedback, whether it is a positive or negative description, and an extreme or non-extreme description of personality characteristics, would influence the level of accuracy a person would rate the quiz at capturing their personality. People would be more likely to accept the general feedback due to the Barnum effect (Poskus, 2014; Snyder & Larson, 1972), which is the tendency for an individual to accept generalized personality results as being accurate to their own personality. In previous work, Snyder et al. (1972) found that if the results were presented like they were personalized to the individual, this was partially responsible for the participant's high acceptance of the results. The purpose of the study was to examine whether the participants who were told that the personality descriptions were designed for them accepted the same generalized description at a higher level than the participants who were told that the description was generalized to be true for most people. After receiving the feedback, the participants rated how well the results matched their own personality on a scale of 1-5, with one being poor. The participants who were told that the generalized result was specific to them rated it as being more accurate than those who were told that the result was generalized to most people. Another study by Forer (1949) aimed to examine the likelihood of people to accept a universally valid personality description. The experiment involved a writer who asked a class to take his Diagnostic Interest Blank (DIB), promising them a personality evaluation afterwards. The following week he gave each student a typed description. The students were blind to the fact that all of the descriptions were identical. They were asked to rate their results on effectiveness in revealing their personality characteristics. All of the students accepted the DIB as a good instrument for personality measurement, thus

demonstrating people's tendency to be overly impressed by vague statements and generalized descriptions. Furthermore, the Self-Verification theory, which asserts that people want to be known and understood according to their firmly held beliefs and feelings about themselves, also pertained to our study. Their self-concepts and self-esteem affects their acceptance of the feedback (Swann, 1983). For example, if a participant has a positive self-concept, they should be more inclined to accept the positive personality results.

In accordance with the Barnum Effect and Self-Verification Theory, we predicted that participants exposed to the positive personality test result would award it a higher accuracy rating than the test result with negative attributes. We also hypothesized that the positive result with an outrageous portion would be rated with higher accuracy than the negative result with an outrageous portion, with both having been lower in rated accuracy than the normal generalized positive and negative results. This study examined participant tendencies to accept one type of personality description over another in terms of how accurately they believe it depicts their own personality.

Method

Participants

People (n=120) from the University of Texas at Austin campus, South Congress, and the Domain shopping mall participated in this study. We recruited participants by means of convenience sampling, and they were asked to sign a document of informed consent before participating in the study. They were blind to the true purpose of the experiment.

Materials

In this study, the materials used were 40 scraps of paper for each of the three experimenters to draw from. A laptop was used for participants to fill out the 15-question online

personality quiz, and to show participants their personality description. (See Appendix B for full questionnaire.) The answer choices for each question were: strongly agree, agree, neutral, disagree, or strongly disagree. We wrote four different personality descriptions: orange- positive generalized result, red- negative generalized result, green- positive extreme result, blue- extreme negative result. In order to qualify as a "positive-extreme" description, we included claims that the participant would win a Nobel Peace Prize, among other inane assertions. The "negative extreme" description incorporated statements that said that the recipient was materialistic, self-centered, jealous, and intolerant of others. (See Appendix C for full personality results.) The final material used in the experiment was the accuracy rating form that asked the participant to rate their result on how accurate they perceived it to be to their own personality on a scale from 1-10 (10 being most accurate).

Design

The experiment used a between-subject design in which we assessed people's tendency to believe the outcome of a generalized personality test with positive results, negative results, positive results with an extreme statement, and negative results with an extreme statement. There were two independent variables including the extremity of the description, and the positivity of the description. Each independent variable had two levels. The levels of extremity were non-extreme test results and extreme test results. The levels of positivity were either negative test results or positive test results. Both variables utilized random assignment and independent subject samples. The experiment had one dependent variable, which was the participant's accuracy rating of their personality description. The dependent variable was quantitative with an interval scale of measurement.

Procedure

We recruited 120 participants for the study. Before approaching the participant, we drew from a bag of 40 scraps of paper in order to randomly assign the participant to each condition. The scraps were divided into 4 groups of 10 pieces that represented one of the four conditions (green, red, blue, or orange). After a scrap was drawn out of a bag, the experimenter threw it away, thus allowing for equal amounts of participants in each condition. We recruited participants by asking them if they would be willing to fill out a new type of personality questionnaire that was developed by the UT social psychology department, in order to test its accuracy. The participants were asked to read and sign a consent form that informed them that the purpose of the study was to see if the new method of personality testing was more accurate at compiling a personality description than previous measures of personality. They were informed that at the end of the study, they would receive their individual personality feedback based off of their answers to the questionnaire. Afterwards, they rated how accurate they thought the results matched their personality. The participants signed the consent form and then began answering the 15-questioned personality survey. After they completed the quiz, we made a show of opening the UT psychology page and altering excel sheets and data charts. This was done to try and give the illusion that their results were actually based off of their answers instead of being a generalized description. After this, the participants received their results, which were either positive, positive with obviously inaccurate results, negative, or negative with obviously inaccurate results. The participants were then asked to read their results and assign an accuracy rating to them on a scale of 1-10 (10 being most accurate). Lastly, we informed them of the actual purpose of our study by giving them a debriefing sheet that stated that we were a group of psychology students in a research and design class. For the class we had to develop a study

around a research question. Our research topic was the Barnum Effect, and we were measuring how people view extreme personality results versus generalized positive/negative results in terms of accuracy to their own personality. We told them that there were only four results, and that they were randomly given one of the results. The experiment took a maximum of 5 minutes per participant.

Results

The purpose of this study was to determine if extremity and positivity in personality results affect participants perceived accuracy of the descriptions. A 2x2 Analysis of Variance (ANOVA), was conducted to test the effects of extremity of personality descriptions (non-extreme vs. extreme) and positivity of personality descriptions (positive vs. negative) on self-reported accuracy ratings of the descriptions. The results of the ANOVA are shown in Table 1, and the means and standard deviations are shown in Table 2. (See Appendix A for full results and tables.) Using an alpha level of .05 for all tests, we found no statistically significant main effect of extremity in personality descriptions on rated accuracy; $F(1, 116) = 1.371$, $p = .244$, $\eta^2 = .007$. The partial eta squared value of .007 indicates a very small effect. When the description was extreme, participants rated its accuracy as being lower ($M = 4.95$, $SD = 2.66$) than when the description was not extreme ($M = 5.40$, $SD = 2.79$). The ANOVA also revealed a statistically significant main effect of positivity in the personality descriptions on rated accuracy; $F(1, 116) = 77.526$, $p < .01$, $\eta^2 = .389$. The partial eta squared value of 0.389 indicates a large effect. When the description was positive, participants rated its accuracy as being higher ($M = 6.87$, $SD = 2.18$) than when the description was negative ($M = 3.48$, $SD = 2.10$). As shown in Figure 1, the results revealed a significant interaction between extremity and positivity on rated accuracy of the personality descriptions, $F(1,116) = 4.517$, $p = .036$, $\eta^2 = .023$, indicating that the level of

extremity and positivity/negativity in the personality descriptions influenced the participants perceived accuracy of the descriptions. (See Appendix D for Figure 1.) The partial eta squared value of .023 indicates a moderate effect. Participants who received positive, non-extreme personality descriptions gave a higher rating of accuracy than those who received negative, non-extreme descriptions. Similarly, those who received positive, extreme descriptions rated them higher in accuracy than participants who were given negative, extreme descriptions.

Discussion

We were interested in the relationship between personality descriptions and how accurate people found them to be at relating to how they saw their own personality. We studied how accurate participants would rate positive/negative and extreme/non-extreme personality descriptions on a scale of 1-10 (10 being most accurate). The findings of the study indicate that while extremity did not have a statistically significant effect upon accuracy ratings, the positivity or negativity of the personality results was statistically significant. Participants rated both of the positive extreme and non-extreme descriptions as more accurate than the negative ones. These results supported the part of our hypothesis that stated participants would give positive personality test results a higher accuracy rating than the results with negative attributes. Also, the extreme positive results would be rated with higher accuracy than the extreme negative result. However, we predicted that both of the extreme results would have lower accuracy ratings than the generalized, non-extreme results, and our data did not support this portion of our hypothesis. These findings indicate that people have a higher tendency to accept generalized personality descriptions as being accurate to their own if they are positive results; this acceptance of general results as descriptive and accurate to one's own personality has been supported by research on the Barnum Effect.

As Poskus (2014) found, personality feedback is often accepted in rational and irrational ways. The experimenters hypothesized that overall personality description ratings produce the Barnum effect, and they aimed to test this empirically. The study used a group that received accurate personality feedback based off of their answers to the NEO PI-R personality questionnaire (the control group). Another group received personality descriptions that were polar opposite of their actual personalities. The third group received results that were only positive, such as high agreeableness and openness, low conscientiousness, etc. The final group received generalized feedback that was vague and true for the general population. All groups were asked to fill out the questionnaire and then rate their results on accuracy. The experimenters found that people who received generalized descriptions, positive descriptions, or who were in the control group, rated their results with a high degree of accuracy. A study by Johnson, Cain, Falke, Hayman, and Perillo (1985) examined whether the Barnum Effect would occur when the participants had not been deceived into believing that the description were specific to their individual personalities. They found that even though the participants were aware that the descriptions were not specific to them, they still displayed a strong motivation to accept the positive descriptions as applicable to their own personality. Johnson et al. (1985) concluded that the tendency of participants to adhere to the Barnum Effect when accepting a generalized personality result was due to a motivational desire to view themselves in a relatively positive light. They coined this tendency as a positive bias. The participants were presented with descriptions that were either positive or negative. They were asked to rate the descriptions for accuracy in accordance with their own personality. They rated the positive descriptions as most applicable to themselves. The results of both cases of previous research are consistent with the

findings of our study. The research illustrated that people have a high likelihood of accepting positive generalized results, thus supporting the Self-Verification theory and Barnum Effect.

There are multiple possible explanations as to why participants rated positive personality descriptions as more accurate depictions of their own personality. We did not measure self-esteem, which could play a large factor into why someone may or may not accept a personality description as applicable to themselves. Also, our study was limited to only 120 participants who were not representative of a diverse population. While some participants were found in different public places away from the University of Texas campus, the majority of the participants were UT students. Our selection of participants was not random, because we used convenience sampling to recruit them. It is also possible that participants could have not taken the study seriously and failed to answer the questions to the best of their ability, which could skew the results of the study. The participants could have also prematurely guessed what the purpose of our experiment was, or they could have skewed their accuracy rating in favor of what they thought we, the experimenters, wanted to see. This could cause the data to not reflect the actual perceived accuracy of the descriptions. Further research on this subject should use random selection methods to compensate for the lack of a representative sample, and there should be a larger sample that is gathered for each condition. In addition to studying the effects of positivity and extremity in personality descriptions on accuracy ratings, future research could also study the affects of participant self-esteem on acceptance of personality descriptions. Self-esteem could be calculated using a self-esteem measurement such as the Rosenberg Self-Esteem Scale, or a questionnaire that measures self-esteem. Self-esteem could play a role in a person's acceptance of personality descriptions, because a person with low self-esteem could potentially be more likely to view negative descriptions as accurate. Researchers could also study the potential

effects that variables such as gender and age may have in self-reported accuracy ratings/acceptance of the generalized personality results. For example, males or females could be more likely to accept certain types of personality results, and a certain age group could be more susceptible to believing generalized results. Since we did not study the possible effects of any of these variables in our study, they could be potentially confounding factors in the interaction represented in the data.

The findings of the study support the Barnum Effect and Self-Verification theory. They suggest that positivity and negativity play a large role in people's acceptance of personality results, while the level of extremity of the description does not have a significant effect on result acceptance.

References

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Snyder, C. R.; Larson, Glenn R. (1972). A further look at student acceptance of general personality interpretations. *Journal of Consulting and Clinical Psychology*, Vol 38(3), 384-388.

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Appendix A

SPSS Data Results

Tests of Between-Subjects Effects

Dependent Variable: Accuracy

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	369.492[a]	3	123.164	27.805	.000
Intercept	3213.675	1	3213.675	725.500	.000
Extremity	6.075	1	6.075	1.371	.244
Positivity	343.408	1	343.408	77.526	.000
Extremity * Positivity	20.008	1	20.008	4.517	.036
Error	513.833	116	4.430		
Total	4097.000	120			
Corrected Total	883.325	119			

a. R Squared = .418 (Adjusted R Squared = .403)

Table 1.
Analysis of Variance for Accuracy Rating due to Positivity and Extremity of Personality Descriptions

Dependent Variable: Accuracy

Extremity	Positivity	Mean	Std. Deviation	N
NonExtreme	Positive	7.5000	1.61352	30
	Negative	3.3000	2.01973	30
	Total	5.4000	2.78738	60
Extreme	Positive	6.2333	2.50080	30
	Negative	3.6667	2.18669	30
	Total	4.9500	2.66442	60
Total	Positive	6.8667	2.18210	60
	Negative	3.4833	2.09512	60
	Total	5.1750	2.72450	120

Table 2.
Descriptive Statistics for Accuracy Rating on Extremity and Positivity in Personality Descriptions

Explore

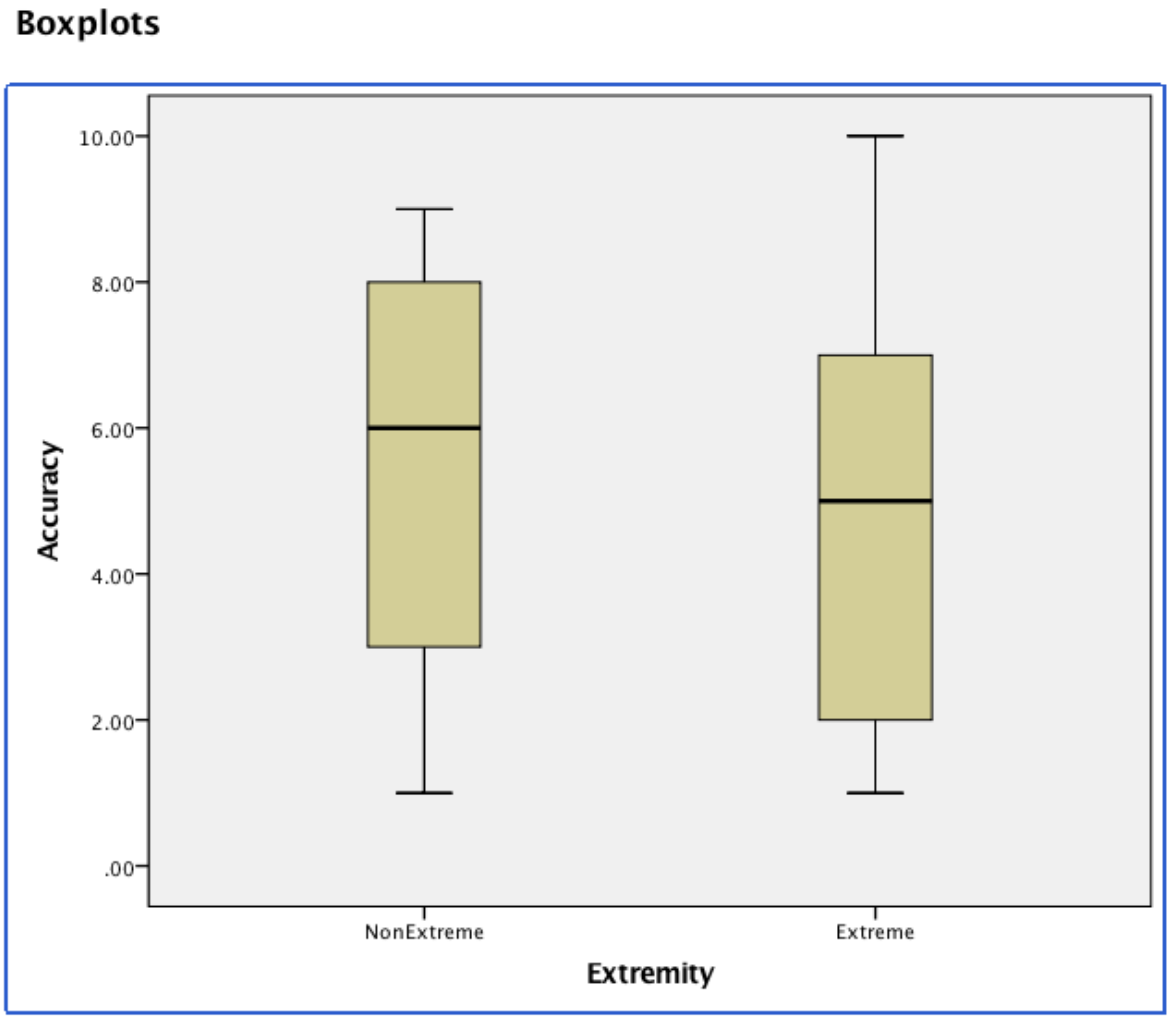
Positivity

Case Processing Summary

		Cases					
		Valid		Missing		Total	
	Positivity	N	Percent	N	Percent	N	Percent
Accuracy	Positive	60	100.0%	0	0.0%	60	100.0%
	Negative	60	100.0%	0	0.0%	60	100.0%

Descriptives

	Positivity			Statistic	Std. Error
Accuracy	Positive	Mean		6.8667	.28171
		95% Confidence Interval for Mean	Lower Bound	6.3030	
			Upper Bound	7.4304	
		5% Trimmed Mean		7.0185	
		Median		7.0000	
		Variance		4.762	
		Std. Deviation		2.18210	
		Minimum		1.00	
		Maximum		10.00	
		Range		9.00	
		Interquartile Range		2.75	
		Skewness		-1.059	.309
		Kurtosis		.308	.608
	Negative	Mean		3.4833	.27048
		95% Confidence Interval for Mean	Lower Bound	2.9421	
			Upper Bound	4.0246	
		5% Trimmed Mean		3.3519	
		Median		3.0000	
		Variance		4.390	
		Std. Deviation		2.09512	
		Minimum		1.00	
		Maximum		9.00	
		Range		8.00	
		Interquartile Range		3.00	
		Skewness		.825	.309
		Kurtosis		-.033	.608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8.00
6.00
4.00
2.00
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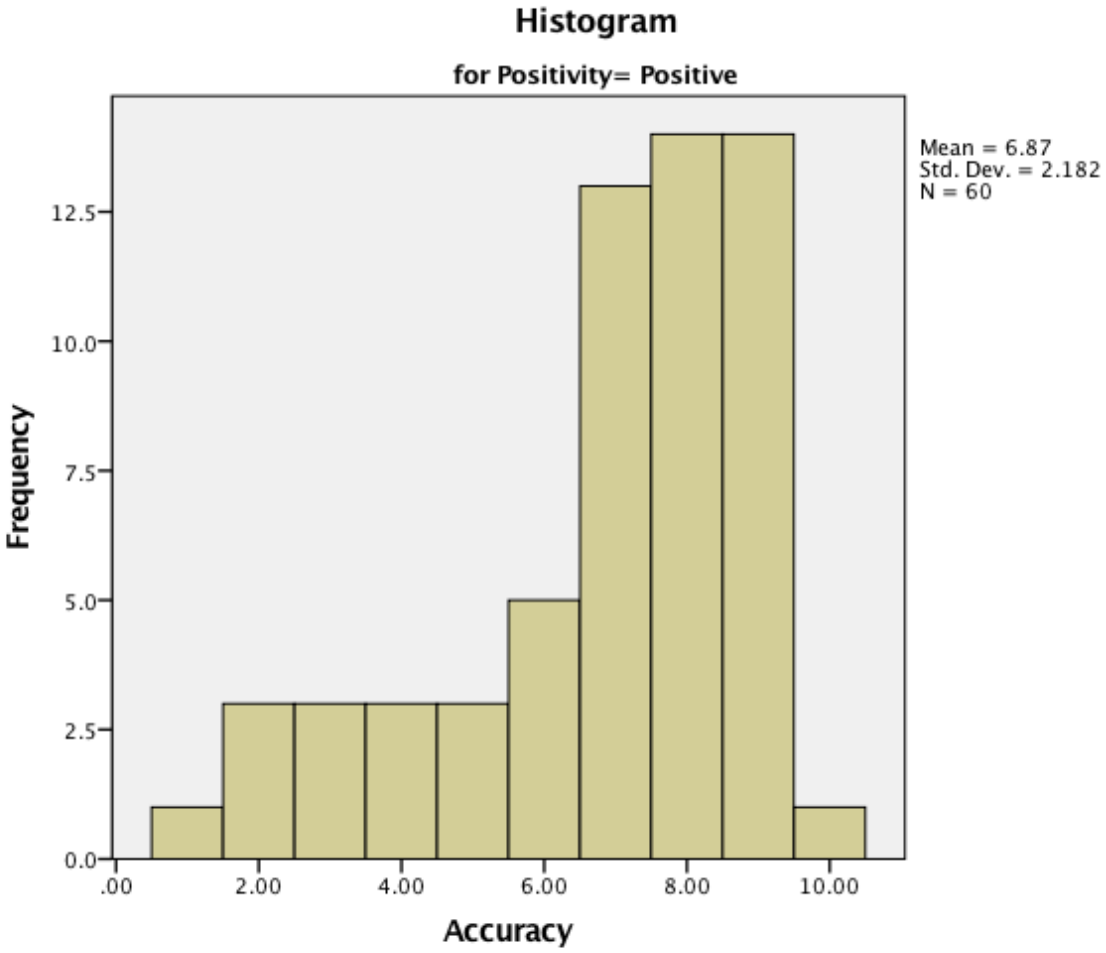
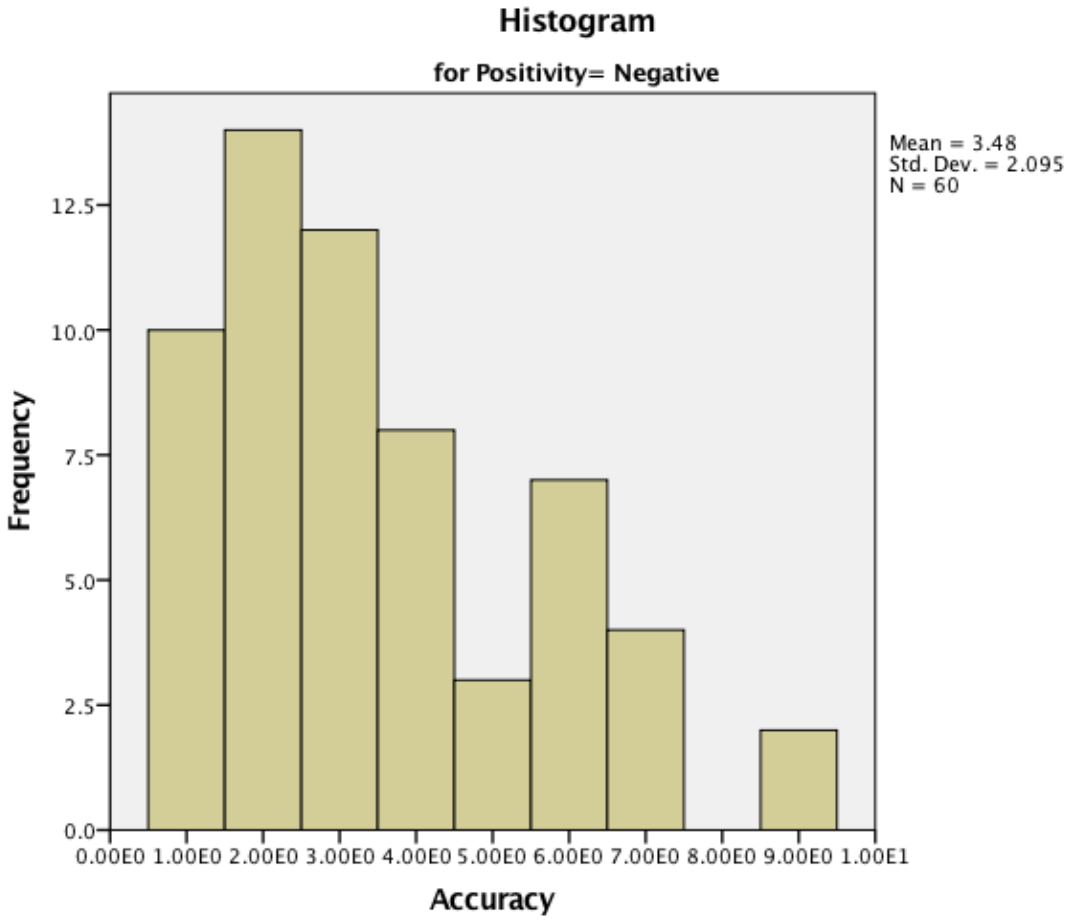
Accuracy
NonExtreme
Extreme
Extremity

Accuracy

Histograms




Histogram
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Mean = 3.48
Std. Dev. = 2.095
N = 60
Frequency
12.5
10.0
7.5
5.0
2.5
0.0
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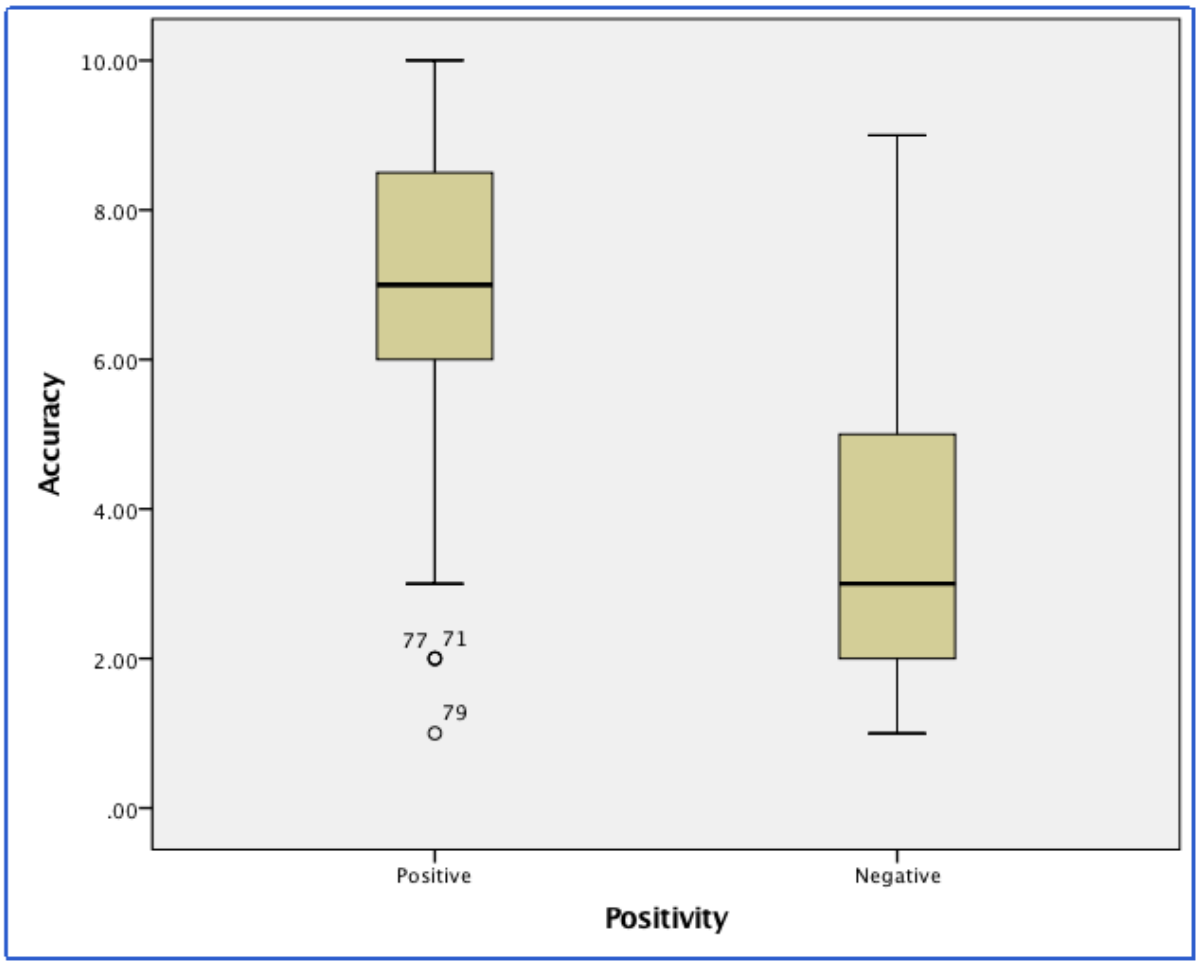
Accuracy


10.00
8.00
6.00
4.00
2.00
.00
Accuracy
77
71
79
Positive
Negative
Positivity

Extremity

Case Processing Summary

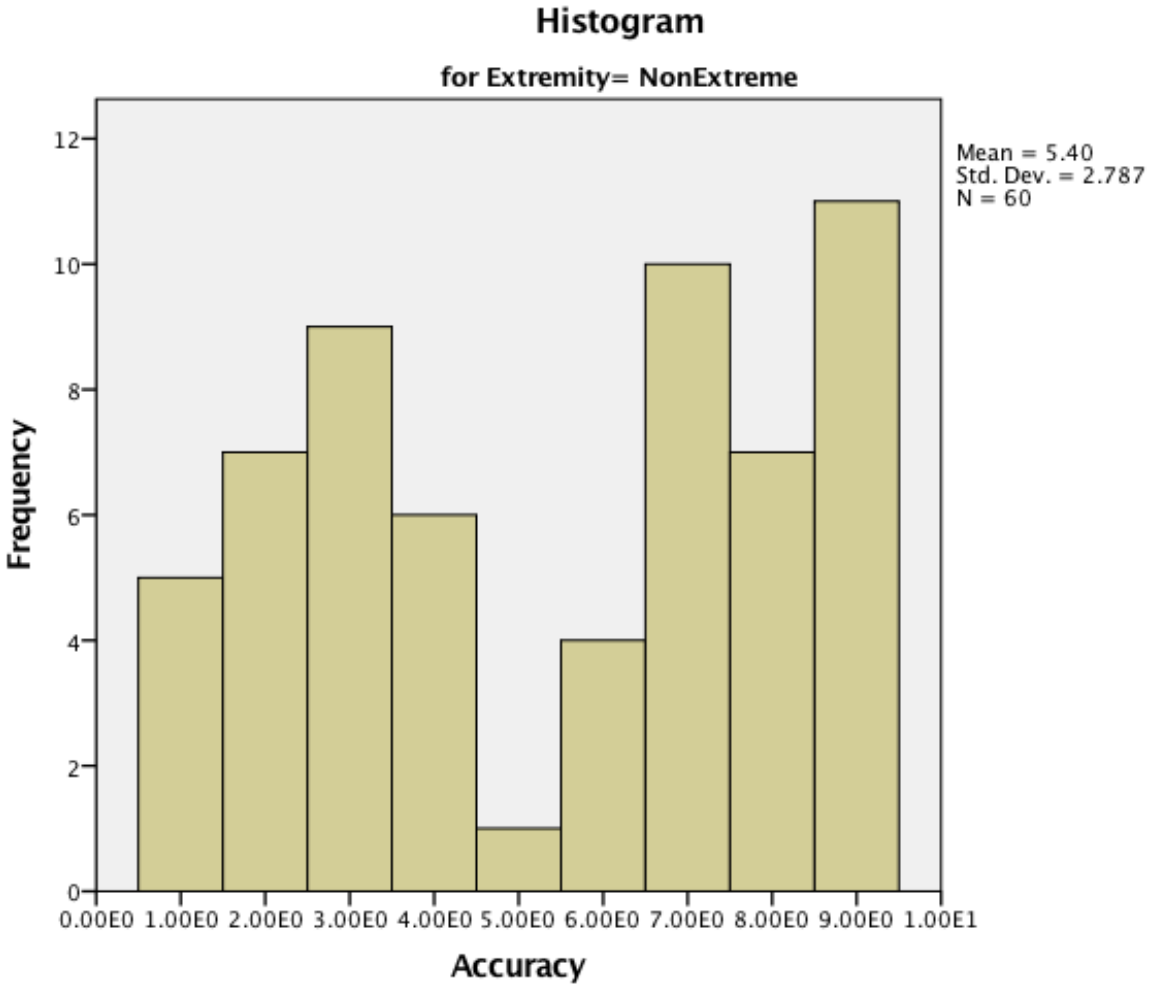
		Cases					
		Valid		Missing		Total	
	Extremity	N	Percent	N	Percent	N	Percent
Accuracy	NonExtreme	60	100.0%	0	0.0%	60	100.0%
	Extreme	60	100.0%	0	0.0%	60	100.0%

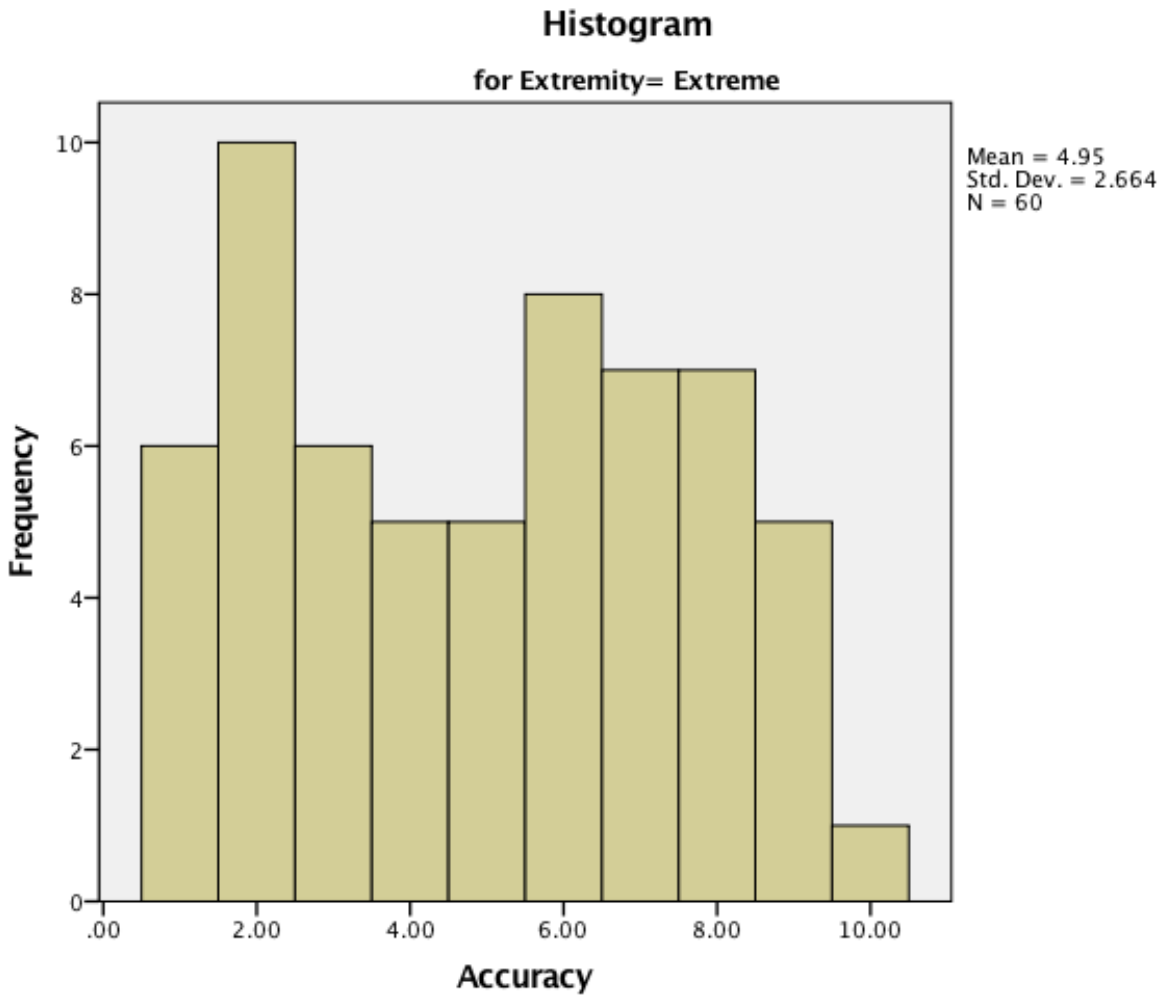
Descriptives

	Extremity			Statistic	Std. Error
Accuracy	NonExtreme	Mean		5.4000	.35985
		95% Confidence Interval for Mean	Lower Bound	4.6799	
			Upper Bound	6.1201	
		5% Trimmed Mean		5.4444	
		Median		6.0000	
		Variance		7.769	
		Std. Deviation		2.78738	
		Minimum		1.00	
		Maximum		9.00	
		Range		8.00	
		Interquartile Range		5.00	
		Skewness		-.133	.309
		Kurtosis		-1.491	.608
	Extreme	Mean		4.9500	.34398
		95% Confidence Interval for Mean	Lower Bound	4.2617	
			Upper Bound	5.6383	
		5% Trimmed Mean		4.9259	
		Median		5.0000	
		Variance		7.099	
		Std. Deviation		2.66442	
		Minimum		1.00	
		Maximum		10.00	
		Range		9.00	
		Interquartile Range		5.00	
		Skewness		.050	.309
		Kurtosis		-1.281	.608

Accuracy

Histograms




Histogram
for Extremity= Extreme
Mean = 4.95
Std. Dev. = 2.664
N = 60
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Accuracy
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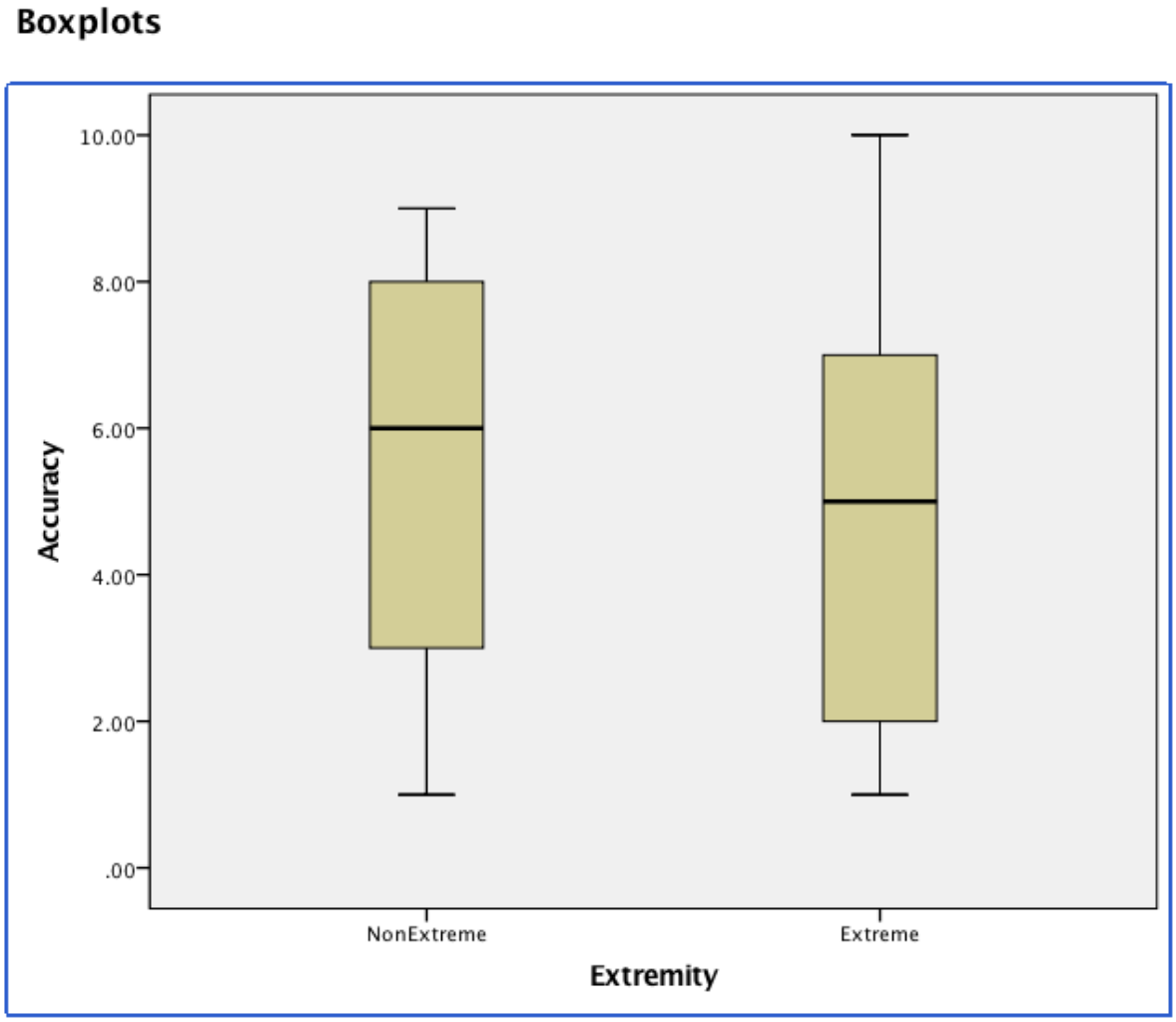
8.00
10.00


Boxplots
10.00
8.00
6.00
4.00
2.00
.00
Accuracy
NonExtreme
Extreme
Extremity

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Extremity	1.00	NonExtreme	60
	2.00	Extreme	60
Positivity	1.00	Positive	60
	2.00	Negative	60

Levene's Test of Equality of Error Variances[a]

Dependent Variable: Accuracy

F	df1	df2	Sig.
2.768	3	116	.045

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Extremity + Positivity + Extremity * Positivity

Estimated Marginal Means

1. Grand Mean

Dependent Variable: Accuracy

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
5.175	.192	4.794	5.556

2. Extremity

Estimates

Dependent Variable: Accuracy

Extremity	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
NonExtreme	5.400	.272	4.862	5.938
Extreme	4.950	.272	4.412	5.488

Pairwise Comparisons

Dependent Variable: Accuracy

(I) Extremity	(J) Extremity	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
NonExtreme	Extreme	.450	.384	.244	-.311	1.211
Extreme	NonExtreme	-.450	.384	.244	-1.211	.311

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable: Accuracy

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	6.075	1	6.075	1.371	.244
Error	513.833	116	4.430		

The F tests the effect of Extremity. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

3. Positivity

Estimates

Dependent Variable: Accuracy

Positivity	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Positive	6.867	.272	6.329	7.405
Negative	3.483	.272	2.945	4.021

Pairwise Comparisons

Dependent Variable: Accuracy

(I) Positivity	(J) Positivity	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
Positive	Negative	3.383*	.384	.000	2.622	4.144
Negative	Positive	-3.383*	.384	.000	-4.144	-2.622

Based on estimated marginal means

*. The mean difference is significant at the

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable: Accuracy

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	343.408	1	343.408	77.526	.000
Error	513.833	116	4.430		

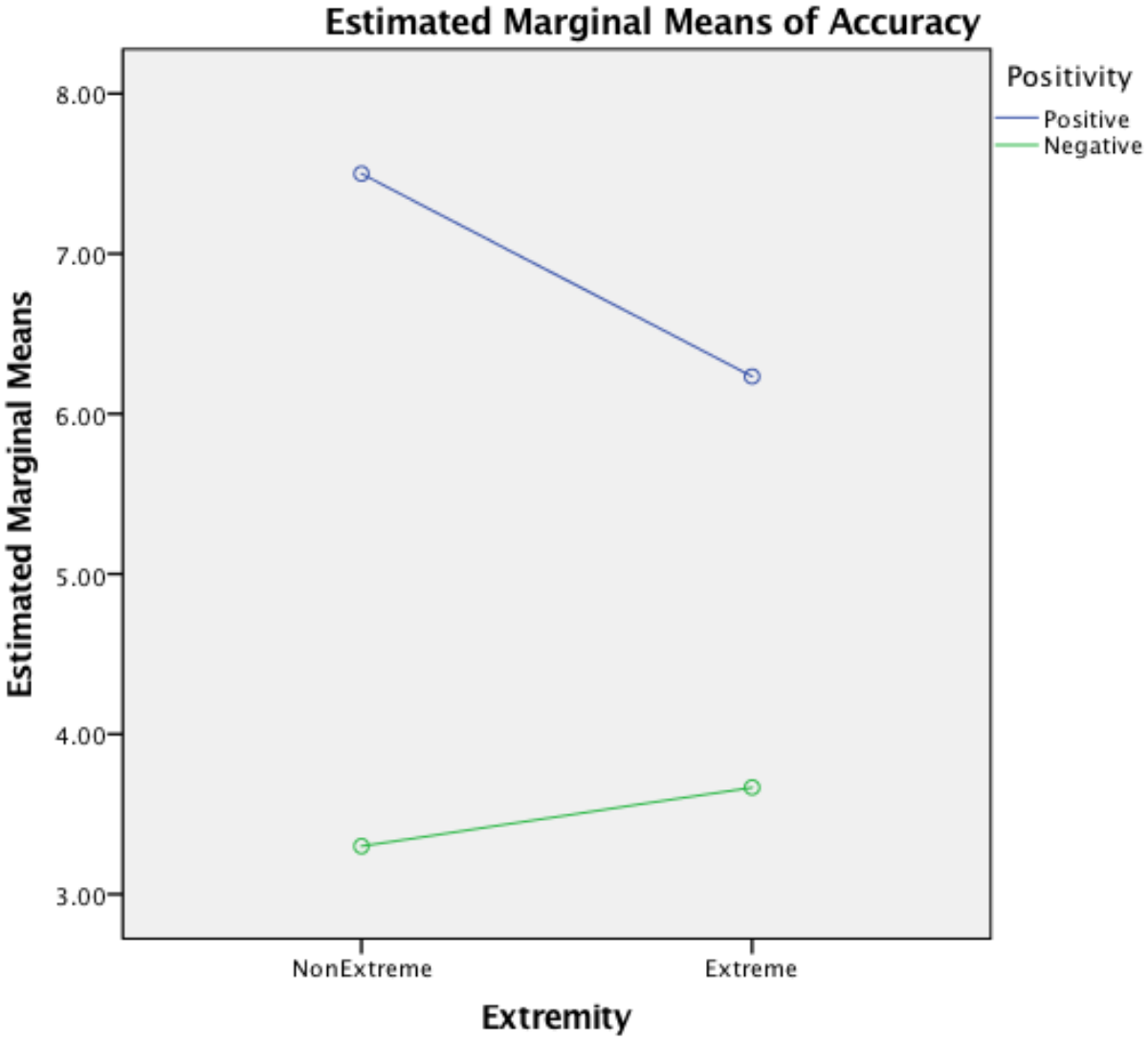
The F tests the effect of Positivity. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

4. Extremity * Positivity

Dependent Variable: Accuracy

Extremity	Positivity	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
NonExtreme	Positive	7.500	.384	6.739	8.261
	Negative	3.300	.384	2.539	4.061
Extreme	Positive	6.233	.384	5.472	6.994
	Negative	3.667	.384	2.906	4.428

Profile Plots



Appendix B

The complete list of personality questions that participants answered on the questionnaire:

1. You tend to plan everything rather than leave things up to chance.
2. You enjoy meeting new people and social interaction.
3. You tend to be very organized.
4. You have difficulty relating to other people's feelings.
5. You have positive self-views and generally high self-esteem.
6. You tend to worry excessively about most things.
7. You procrastinate often.
8. You find it difficult to trust others.
9. You enjoy trying new things.
10. You rarely deviate from your habits.
11. You tend to be very critical of others.
12. You like to solve problems.
13. You tend to do well in academic settings.
14. You feel comfortable expressing your emotions.
15. You enjoy helping others.

Appendix C

The four personality descriptions that participants could receive:

Positive, non-extreme: You have an ORANGE type personality! You get along well with others, and are in tune with the emotions of other people. You enjoy the company of good friends, but you are independent enough to be on your own as well. You are adventurous and free-spirited, and enjoy trying new things, but you always stick to your convictions and never stray too far from who you are. Additionally, you are capable, intellectual, and creative, and are almost always able to come up with solutions to problems. Because of this, you are a quick learner and generally thrive in academics.

Negative, non-extreme: You have a RED type personality. You tend to be judgmental and are quick to make assessments of others. You are generally not very conscientious of others' feelings, and find it hard to get along with others. Because of this, you usually have a small circle of friends. Additionally, you tend to worry about what others think of you, and you tend to dwell on anxieties and stressors in life. You are strict in your moral convictions, but to a default, as you tend to be intolerant of others who differ from yourself.

Positive, extreme: You have a Green type personality. You are a daydreamer and you find yourself spending a lot of time making up elaborate fantasy worlds. You have a high level of empathy towards others, and sometimes you can almost feel what they are feeling. Additionally, you are capable, intellectual, and creative, and are almost always able to come up with solutions to problems. Because of this, you are a quick learner and generally thrive in academics; one day you will win a Nobel Prize.

Negative, extreme: You have a Blue type personality. You are individualistic and self-centered. You have no regard for your peers, and you have low tolerance for people who are different than you. You have extreme determination and drive to reach your goals, causing you to stop at nothing to get what you want. You justify your often hurtful and dishonest actions as necessary steps towards your goal. You are materialistic and you are never satisfied with what you have. You feel intense jealousy towards people who have skills and possessions that you lack.

Appendix D

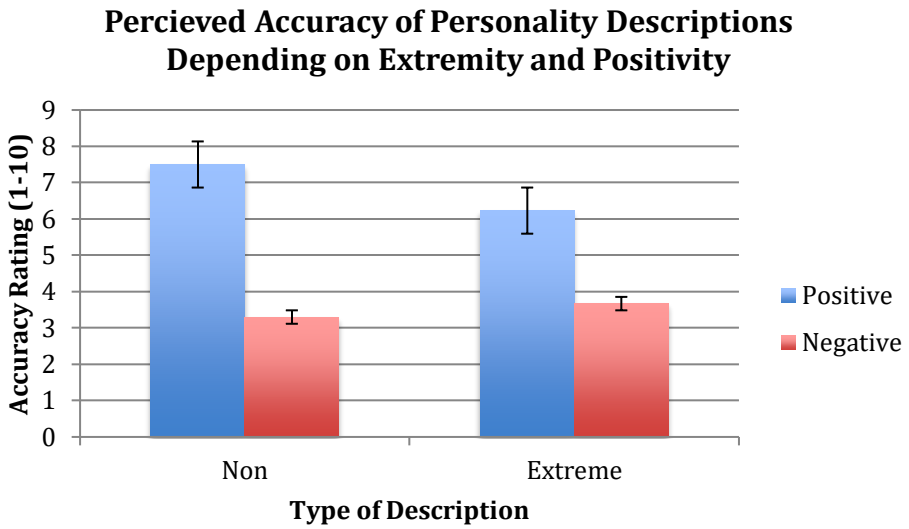


Figure 1. The participant accuracy ratings of the extreme/non-extreme and positive/negative personality descriptions they received.