Impression Formation

An investigation on the influence of descriptive words on person perception

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Introduction:

The aim of our investigation was to replicate an experiment run by Solomon Asch to test how the incorporation of opposite descriptive words in a list of adjectives about a character's personality influences the overall perception of that character's temperament. This experiment is relevant because humans rely on person perception on a day to day basis while forming relationships with others. It is important to note how easily people can be influenced in determining a person's personality especially since modern technology is on the rise. For example, in the workplace, headshots and resumes are commonly used to showcase a person's qualities. However, a certain descriptive word or photo can easily influence how the person viewing the portfolio discerns the individual's temperament.

Asch's investigation is based on the idea of person perception. Person perception demonstrates the tendency of humans to form impressions of other people. A form of person perception known as indirect person perception forms impressions indirectly, from either observations or second-hand information. Indirect person perception connects directly to our investigation because we will be giving the participants third-party information about the personality traits of our fictional character which they are asked to form impressions on. This second-hand information will act as the basis for which the participants will form impressions.

Our group replicated Experiment 1 of Solomon Asch's Forming Impressions of Personality Study. The experiment aimed to see how the incorporation of the "warm" and "cold" in a list of other personality traits would influence how the participant forms an impression on a made-up character. Two groups, A (consisting of 90 subjects) and B (76 subjects), were read an identical list of seven character-qualities, except for the words "warm" and "cold" which were switched out for each group. Group A heard the person described as "warm" while group B heard the person described as "cold." The participants were then handed a ranking sheet with 18 pairs of opposing adjectives, such as shrewd and wise and strong and weak. After hearing the initial list of seven adjectives, including either warm or cold, the participants were asked to circle whichever opposing adjective they believed fit best with the fictional character's personality. The subjects were also asked to write out a description of the character's personality to provide concrete evidence of the impressions formed. However, analyzing these descriptions posed serious difficulties. Ultimately, these descriptions were taken into consideration but the results were mainly derived from the opposing adjectives. The results show that in general, the A group impressions were far more positive than the B group impressions (see App. 1).

Null Hypothesis: Changing the fourth word from "warm" to "cold" in the list of seven adjectives provided to the subjects will have no effect on the subjects' rankings of the fictional person in a list of 18 pairs of adjective opposites where we averaged six rankings from pre-selected pairs to calculate a positivity composite score.

One-Tailed Research Hypothesis: Changing the fourth word from "warm" to "cold" in the list of seven adjectives provided will have a negative effect on the subjects' rankings of the fictional person in a list of 18 pairs of adjective opposites where we averaged six rankings (from 1-10) from pre-designated pairs to calculate a positivity composite score.

Exploration:

We used an independent measures design for our experiment because if the subjects were to repeat the experiment, they could potentially figure out our intentions and alter their responses. We used two different groups of subjects because one group heard the word "cold" and the other, "warm." If we used repeated measures, the subjects would be able to find the different adjective and eventually guess our intentions. Our group chose our participants through convenience sampling because there was a group of students at our school that was willing to participate in our experiment. Therefore, it was most convenient for us to utilize them. We wanted to see the effect of our experiment on a target population so we chose English-speaking students between the ages of 14 and 18 in a common Midwest geographical location to achieve this. In addition, 9 males and 13 females were sampled so our results could be generalized to both sexes.

Procedure:

1. Setup the classroom:
   a. Display the photo of the fictional character to the class through a projector (see App. 11).
   b. Use 2 manila folders to create a booth so participants can't view other participants' answers.
2. Separate the participants into two groups. Have the first group find a seat in the classroom while the second group remains outside in the hallway.
3. Distribute consent forms to the first group. (see App. 2)
4. While one group member passes out the ranking sheet with the 18 pairs of adjectives (see App. 3) and list of definitions (see App. 4), another group member will give verbal instruction from our planned script (see App. 5).
   a. Both groups hear the initial prompt about how we interviewed the fictional character "John's" family and friends to provide personality traits that best describe him.
   b. The warm group will hear the list of seven adjectives twice including "warm," while the cold group will hear the word "cold."
5. One member will collect worksheets after participants are finished.
6. Another member will give a verbal debrief (see App. 6).
7. The warm group will then exit, and the cold group will enter the classroom.
8. Repeat procedure for cold group, this time with the "cold" condition.

One extraneous variable that could arise from our experiment is the ability of the participants to comprehend the list of seven adjectives. To control for this extraneous variable, the subject's uncertainty, our group created a list of definitions that correspond to each of the traits and we ensured they were at grade level. We had many controlled variables that remained constant between the two groups including the time to complete the ranking form and the photo of the fictional character. By including the same photo of the fictional character between the two conditions, the participants were able to form similar interpretations. To ensure our experiment was ethical, we had every participant sign an informed consent form with a parent signature before participating in our experiment (see App. 7). Also, each subject was given the right to withdraw at any time during our experiment. Our group's emails were displayed on a whiteboard for subjects to withdraw from the study if needed. We demonstrated confidentiality by assuring

every participant that their data would be anonymous and confidential. We also debriefed all subjects after their involvement in our experiment so that they would understand the purpose and nature of our study. We used mild deception in our experiment, however, it remained ethical because during the debrief, we explained that the fictional character was not real and we did not actually interview his family and friends.

Analysis:

Although we had each participant rank all 18 pairs of adjectives, our group chose six that had a most negative trait on the left/lower end and positive trait on the right. We chose this so we could calculate a composite positivity score out of the results. We calculated the mean of the six adjective pairs for each subject; this was their positivity score. Raw data can be found in Appendix 8. We then compiled those positivity scores to calculate the median as our measure of central tendency as it is resistant to outliers. The median positivity score for the warm group was 6.92; for the Cold Group, the median was 4.585. We decided to use IQR as our measure of dispersion because it showed a general depiction of the spread of our data without the outliers and tail-end values. The IQR of the warm group was 2.75 and the IQR of the cold group came out to be 1.0. We can see the results support our research hypothesis because the median value decreased from the "warm" to "cold" conditions. To calculate the significance of our data, our group chose to use a Mann-Whitney U Test because or experiment used independent measures and our data is classified as ordinal. The calculation of our Mann-Whitney U Test can be found in Appendix 9. After performing the test, we found that the U value was 17. Using a one-tailed U-chart (see App. 10), the critical value at a 5% significance level was 34. Since our U value was less than our critical value, we reject the null hypothesis, accept the research hypothesis, and conclude with 95% certainty that our results are not due to chance, and the two groups yielded significantly different results.

Average Adjective Rankings (Warm)

Average Positivity Score

Average Adjective Rankings (Cold)
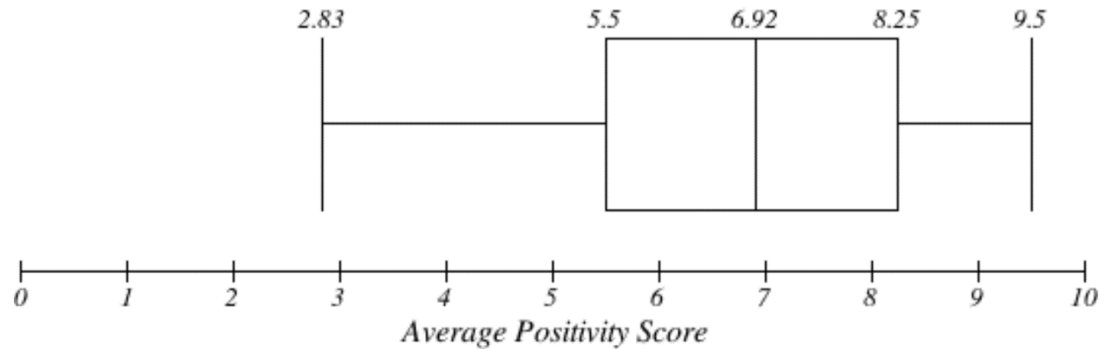
Average Positivity Score
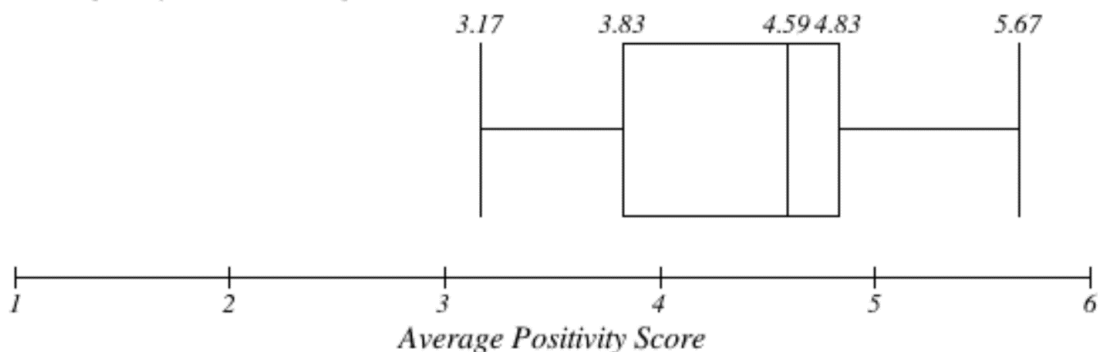
Evaluation:

Because our U value (17) was less than the critical value (34), we rejected our null hypothesis and concluded that the average "cold" positivity score was significantly less than the average "warm" positivity score. The median of the mean positivity scores decreased from 6.92 to 4.59 from the warm to cold conditions. Our replicated experiment found similar results and showed "that a change in one character quality has produced a widespread change in the entire impression" (Asch, 1946). Our results and Asch's results relate to the idea of person perception. Our findings show that there are certain central traits that impact our interpretation of other traits. This is where our negative central trait, cold, elicited negative impressions of our fictional character John. This connects to the idea of third party person perception because the participants were able to form impressions on our character John given only the photo and list of adjectives we provided them. Indirect person perception influenced how the participants viewed John by the basic change of a single adjective.

One strength of the design of our procedure is that we included a picture of our fictional character "John." The inclusion of the photo allowed the subjects to make the experiment more personal because the photo humanizes John. Developing a personal connection between the experiment and the subjects allows the participants to make a more sincere evaluation of John's temperament. Some strengths of the sample of our experiment was that our subjects were fluent in English and had about the same level of education. Since we used English fluent high school subjects that were from the same Midwest high school, our sample was very uniform. Furthermore, all subjects would be able to understand the list of adjectives describing John since all have the same high school education. A strength of the procedure of our experiment is that we provided all participants with a definition list of the adjectives that described John. This ensured the subjects would not be confused about the meaning of the adjectives. In addition, giving all subjects the same definition confirmed that they would perceive the adjectives in the same manner.

Although we had many strengths of our experiment, we also encountered some limitations. A limitation of the design of our experiment is that we included 18 pairs of adjectives on the ranking sheet. Since we only performed a Mann-Whitney U Test on the mean positivity score of 6 of the adjectives ranked, it might have been unnecessary to include all 18 pairs. The inclusion of too many rankings could have distracted the participants and possibly made them anxious. If we gave only 6 pairs, the subjects would have had more time to think about each response. However, the reason we chose to have the ranking sheet include 18 pairs was because we wanted to maintain the authenticity of Asch's original experiment which included 18 pairs. A limitation of the sample is that it is limited in diversity. The sample only included students from a certain age range and location which makes it difficult to generalize our results to an entire population. Our findings are only able to be generalized to a population of Midwest high school students. In addition, a limitation of the procedure of our experiment is that the participants raised their hands to signify that they're ready for their ranking sheets to be collected. This may have negatively affected the other participants by clouding their thinking and making them feel rushed. By making other participants feel hurried, this limitation may have influenced the accuracy of the results.

To modify the limitation of the participants feeling anxious in the future, we could specify the time limit prior so that the subjects can pace themselves which could limit how the

subjects influence each other. To take our research further, we could explore the way in which gender affects the results differently. We could do this by using a different photo of our fictional character and changing the name from male to female. Instead of using the photo of "John," we could use a female fictional character. The changes in the results of this new experiment could explain gender bias within the population. For example, if the mean positivity score increases in the warm condition from both experiments, gender bias would be evident.

Using the results of our Mann-Whitney U Test, we rejected our null hypothesis and concluded that changing an adjective from "warm" to "cold" has a negative effect on our subjects' rankings; these findings relate to those of Asch because both showcase the substantial influence of person perception.

References

Asch, S. (1946, July). Forming Impressions of Personality. *Journal of Abnormal Psychology*, *41*(3), 258-266. Retrieved October 15, 2019, from https://www.romolocapuano.com/wp-content/uploads/2013/08/Asch-Forming-Impressions-Of-Personality.pdf

Boxplot Grapher. (n.d.). Retrieved October 13, 2019, from http://www.imathas.com/stattools/boxplot.html.

Appendix 1: Choice of Fitting Qualities as Percentages (Asch 1946)

	Experiment I	
	"Warm" N=90	"Cold" N=76
1. generous	91	8
2. wise	65	25
3. happy	90	34
4. good-natured	94	17
5. humorous	77	13
6. sociable	91	38
7. popular	84	28
8. reliable	94	99
9. important	88	99
10. humane	86	31
11. good-looking	77	69
12. persistent	100	97
13. serious	100	99
14. restrained	77	89
15. altruistic	69	18
16. imaginative	51	19
17. strong	98	95
18. honest	98	94

Informed Consent Form

By signing this informed consent form, you agree to participate in our experiment. Your results will remain anonymous and at any point you have the right to withdraw your data from the experiment. You will also be debriefed at the end of the experiment.

Name:_____

Grade:_____

School Email:_____

Signature:_____   Date:_____

Appendix 3: Ranking Sheet

1. **Ungenerous** 1 2 3 4 5 6 7 8 9 10 **Generous**

2. **Shrewd** 1 2 3 4 5 6 7 8 9 10 **Wise**

3. **Unhappy** 1 2 3 4 5 6 7 8 9 10 **Happy**

4. **Irritable** 1 2 3 4 5 6 7 8 9 10 **Good-Natured**

5. **Humorless** 1 2 3 4 5 6 7 8 9 10 **Humorous**

6. **Unsociable** 1 2 3 4 5 6 7 8 9 10 **Sociable**

7. **Unpopular** 1 2 3 4 5 6 7 8 9 10 **Popular**

8. **Unreliable** 1 2 3 4 5 6 7 8 9 10 **Reliable**

9. **Insignificant** 1 2 3 4 5 6 7 8 9 10 **Important**

10. **Ruthless** 1 2 3 4 5 6 7 8 9 10 **Humane**

11. **Unattractive** 1 2 3 4 5 6 7 8 9 10 **Good-Looking**

12. **Unstable** 1 2 3 4 5 6 7 8 9 10 **Consistent**

13. **Frivolous** 1 2 3 4 5 6 7 8 9 10 **Serious**

14. **Talkative** 1 2 3 4 5 6 7 8 9 10 **Restrained**

15. **Self- Centered** 1 2 3 4 5 6 7 8 9 10 **Altruistic**

16. **Hard-Headed** 1 2 3 4 5 6 7 8 9 10 **Imaginative**

17. **Weak** 1 2 3 4 5 6 7 8 9 10 **Strong**

18. **Dishonest** 1 2 3 4 5 6 7 8 9 10 **Honest**

Appendix 4: Definition Sheets

Warm Definition Sheet:

Intelligence- the ability to acquire and apply knowledge and skills

Skillful- the ability to do something well; expertise

Industrious- diligent and hardworking

Warm- having, showing, or expressive of enthusiasm, affection, or kindness

Determined- having made a firm decision and being resolved not to change it

Practical- (an idea, plan, or method) likely to succeed of be effective in real circumstances; feasible

Cautious- characterized by the desire to avoid potential problems

Cold Definition Sheet:

Intelligence- the ability to acquire and apply knowledge and skills

Skillful- the ability to do something well; expertise

Industrious- diligent and hardworking

Cold- lacking in passion, emotion, enthusiasm; dispassionate

Determined- having made a firm decision and being resolved not to change it

Practical- (an idea, plan, or method) likely to succeed of be effective in real circumstances; feasible

Cautious- characterized by the desire to avoid potential problems

Appendix 5: Verbal Instructions/Script

1. Please sit down at one of the manila folder work areas set up around the room.

2. Read over and sign the consent form. Please let us know if you need a writing utensil.

3. We will then pass out a sheet of paper facedown, do not flip the sheet over.

4. Today we will be investigating personal perception.

5. You are about to be shown a photo of John and a list of characteristics describing him. We will read you a short narrative and a list of adjectives, provided by John's friends and family in an interview, that describe his personality.

6. We will provide you with the adjectives' definitions in case you are unsure of their meaning.

7. After listening to the list of seven adjectives twice, you will turn over the sheet of paper on your desk that has 18 pairs of opposing adjectives such as:

Stupid 1 2 3 4 5 6 7 8 9 10 Smart

8. You must circle one of the numbers on this scale in coordination with your perception of the John based on the description provided by the list of adjectives we read to you. The rankings work on a scale where:

1 is the most extreme low

10 is the most extreme high

5 is neutral

9. We interviewed John's family and friends who came up with the following adjectives: intelligent, skillful, industrious, warm/cold (switch for each group of participants), determined, practical, cautious.

10. When you are finished, raise your hand and we will come around to collect both your ranking and consent forms.

10. Thank you for participating in this study, we will now read the debrief.

Thank you for participating in our study!

We were testing how the inclusion of certain adjectives in the list provided to you influenced your perception of the person. Specifically, we were testing how including the word "warm" or "cold" affected your impression of "John." We used mild deception in this experiment as the person, whom we named John, is fictional and we did not speak with his friends and family to gather these adjective characteristics.

You are welcome to withdraw your data from the experiment at any time
If you wish to get in contact with us, our emails are:
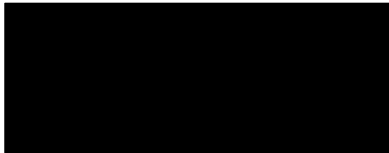
September 2, 2019

Dear Parents,

I am writing this letter to inform you directly about the nature of the Psych IA Experiment Day that will be taking place on Tuesday, October 1st, 2019. All Psychology students need to be there to participate as subjects (Psych I) or as experimenters & subjects (Psych II) from approximately 2:30-4:00pm. This is an IB Psychology requirement. I am asking for volunteers from NHS and Key Club to act as participants (for service hours) in the experiments as well. Ethical guidelines require that parents give consent for their minor children in order to participate in a Psychology IA. If you agree to let your child(ren) participate in Psych IA Day, please write their name(s) below and sign and date on the line. If you have any questions or would like to review the procedural or ethical guidelines, I would be happy to email them to you. Please rest assured that IB Psychology standards are even more stringent than standard ethical requirements and your student will not be in any physical or emotional distress. Thank you for your cooperation and support for this required, albeit inconvenient, IB activity.

Sincerely,

Please Print Name(s) of Minor Child(ren) Who Will Participate in the Psychology IA Day below:

Student Name(s): _____

Parent Signature: _____ Date: _____

Appendix 8: Experiment Raw Data

Our Raw Data

Group1: warm condition
12 participants
6.67
9.50
7.67
2.83
9.50
5.83
4.17
6.67
7.17
8.83
5.17
7.67

Group2: cold condition
10 participants
3.83
3.33
5.67
3.17
4.50
5.00
4.67
4.67
3.83
4.83

Mann-Whitney U Calculations

Rank all scores together, ignoring which condition they come from.

Avg. score	Rank		Avg. score	Rank
W 2.83	1		W 5.17	12
C 3.17	2		C 5.67	13
C 3.33	3		W 5.83	14
C 3.83	4.5		W 6.67	15.5
C 3.83	4.5		W 6.67	15.5
W 4.17	6		W 7.17	17
C 4.50	7		W 7.67	18.5
C 4.67	8.5		W 7.67	18.5
C 4.67	8.5		W 8.83	20
C 4.83	10		W 9.50	21.5
C 5.00	11		W 9.50	21.5

W = warm condition   C = cold condition

T_1 = warm = 181 T_2 = cold = 72 $\therefore T_x = 181$
n_1 = warm = 12 n_2 = cold = 10 $\therefore n_x = 12$

Find U

$$U = n_1 \times n_2 + n_x \left(\frac{(n_x + 1)}{2} \right) - T_x$$

$$U = 12 \times 10 + 12 \left(\frac{(12 + 1)}{2} \right) - 181 = \boxed{17}$$

Find critical value using 2-tailed U table. (5%)
= 34

Critical value ≥ U, then statistically significant
34 ≥ 17 ∴ statistically significant

Critical Values of the Mann-Whitney U
(One-Tailed Testing)

n_2	α	n_1
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3	.05	0	0	1	2	2	3	4	4	5	5	6	7	7	8	9	9	10	11
	.01	--	0	0	0	0	0	1	1	1	2	2	2	3	3	4	4	4	5
4	.05	0	1	2	3	4	5	6	7	8	9	10	11	12	14	15	16	17	18
	.01	--	--	0	1	1	2	3	3	4	5	5	6	7	7	8	9	9	10
5	.05	1	2	4	5	6	8	9	11	12	13	15	16	18	19	20	22	23	25
	.01	--	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	.05	2	3	5	7	8	10	12	14	16	17	19	21	23	25	26	28	30	32
	.01	--	1	2	3	4	6	7	8	9	11	12	13	15	16	18	19	20	22
7	.05	2	4	6	8	11	13	15	17	19	21	24	26	28	30	33	35	37	39
	.01	0	1	3	4	6	7	9	11	12	14	16	17	19	21	23	24	26	28
8	.05	3	5	8	10	13	15	18	20	23	26	28	31	33	36	39	41	44	47
	.01	0	2	4	6	7	9	11	13	15	17	20	22	24	26	28	30	32	34
9	.05	4	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54
	.01	1	3	5	7	9	11	14	16	18	21	23	26	28	31	33	36	38	40
10	.05	4	7	11	14	17	20	24	27	31	34	37	41	44	48	51	55	58	62
	.01	1	3	6	8	11	13	16	19	22	24	27	30	33	36	38	41	44	47
11	.05	5	8	12	16	19	23	27	31	34	38	42	46	50	54	57	61	65	69
	.01	1	4	7	9	12	15	18	22	25	28	31	34	37	41	44	47	50	53
12	.05	5	9	13	17	21	26	30	34	38	42	47	51	55	60	64	68	72	77
	.01	2	5	8	11	14	17	21	24	28	31	35	38	42	46	49	53	56	60
13	.05	6	10	15	19	24	28	33	37	42	47	51	56	61	65	70	75	80	84
	.01	2	5	9	12	16	20	23	27	31	35	39	43	47	51	55	59	63	67
14	.05	7	11	16	21	26	31	36	41	46	51	56	61	66	71	77	82	87	92
	.01	2	6	10	13	17	22	26	30	34	38	43	47	51	56	60	65	69	73
15	.05	7	12	18	23	28	33	39	44	50	55	61	66	72	77	83	88	94	100
	.01	3	7	11	15	19	24	28	33	37	42	47	51	56	61	66	70	75	80
16	.05	8	14	19	25	30	36	42	48	54	60	65	71	77	83	89	95	101	107
	.01	3	7	12	16	21	26	31	36	41	46	51	56	61	66	71	76	82	87
17	.05	9	15	20	26	33	39	45	51	57	64	70	77	83	89	96	102	109	115
	.01	4	8	13	18	23	28	33	38	44	49	55	60	66	71	77	82	88	93
18	.05	9	16	22	28	35	41	48	55	61	68	75	82	88	95	102	109	116	123
	.01	4	9	14	19	24	30	36	41	47	53	59	65	70	76	82	88	94	100
19	.05	10	17	23	30	37	44	51	58	65	72	80	87	94	101	109	116	123	130
	.01	4	9	15	20	26	32	38	44	50	56	63	69	75	82	88	94	101	107
20	.05	11	18	25	32	39	47	54	62	69	77	84	92	100	107	115	123	130	138
	.01	5	10	16	22	28	34	40	47	53	60	67	73	80	87	93	100	107	114

Appendix 11: Photo of Fictional Character: John