

Barnum Effect: Influence of Social Desirability, Base Rate and Personalization

SE367 : Introduction to Cognitive Science
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Abstract

Why do people fall for the advice of astrologers, fortune tellers etc.? Is astrology actually true or people are inclined towards believing it? It's an observation that every individual relates these predictions to exclusively himself when they are actually vague and very general, applicable to most of the people. This is known as the 'Barnum Effect'. Barnum statements are usually favorable and true for a larger group of people in the society. There's no definite explanation as to why Barnum effect happens. It's universal, unaffected by age, gender etc. The aim of this study is to expose the greater acceptance of Barnum effect among the students in our institute. Also since these Barnum statements are usually favorable and applicable to a large number of people in the society, this project also studies the effect of social desirability, base rate and personalization on this phenomenon.

1 Introduction

In 1948, a famous psychologist Bertram R. Forer conducted an experiment in his class [2]. He asked his students to complete a personality questionnaire and told them that they will be given an analysis of their personality on the basis of that questionnaire. In reality, all students were given the same profile, prepared by Forer by compiling together several statements from different horoscopes:

“You have a great need for other people to like and admire you. You have a tendency to be critical of yourself. You have a great deal of unused capacity which you have not turned to your advantage. While you have some personality weaknesses, you are generally able to compensate for them. Your sexual adjustment has presented problems for you. Disciplined and self-controlled outside, you tend to be worrisome and insecure inside. At times you have serious doubts as to whether you have made the right decision or done the right thing. You prefer a certain amount of change and variety and become dissatisfied when hemmed in by restrictions and limitations. You pride yourself as an independent thinker and do not accept others' statements without satisfactory proof. You have found it unwise to be too frank in revealing yourself to others. At times you are extroverted, affable, sociable, while at other times you are introverted, wary, reserved. Some of

your aspirations tend to be pretty unrealistic. Security is one of your major goals in life.” (Forer, 1948)

The students, unaware of this fact, were then asked to rate their profiles on a scale of 0 (highly inaccurate) to 5 (perfect). The class’ average rating was around 4.26! This was the first time when Barnum Effect was noticed.

Barnum Effect is named after the famous showman P.T. Barnum who used to say “A circus should have a little something for everyone”, just like a Barnum profile has a little something for every personality. Barnum statements can be roughly classified into four kinds of statements (Sundberg, 1955)[4]:

1. Vague - Do not apply to a person specifically
2. Double-headed - Have words of opposite meanings in the same statement, e.g.- At times you are extroverted, affable, sociable, while at other times you are introverted, wary, reserved.
3. Modal - True for a group of people, e.g.- Fairness is important for you.
4. Favorable - Positive statements, desirable qualities

2 Why Barnum Effect happens?

Barnum effect doesn’t have a definite explanation. It’s universal, unaffected by gender, age, culture etc. Several experiments have been conducted in the past fifty years to explore its possible causes. Several hypothesis came up, some important ones are listed below:

1. Prestige/Authority of the test administrator - A person is more likely to believe a psychologist administering the test rather than a student.
2. Gullibility of the subject
3. Generality of the statements - higher acceptance of statements which apply to almost everyone (high base rate)
4. Favorability - more positive or socially desirable traits
5. Personalization - a person will show greater acceptance if she is made to believe that the analysis is specifically tailored for her

This project aims at studying the last three hypothesis in detail. The first experiment deals with finding such personality traits which satisfy the last three criterias of Favorability, Generality and Personalization to varying extent. The second experiment studies the acceptance of such statements among the students in our institute.

2.1 Social Desirability

Socially Desirable traits as the name says are those that desired by most of the people in the society. These are in accordance with the norms of the society and mostly positive in nature. Barnum statements are highly accepted because they are favorable and have high social desirability. In

1955, Sundberg conducted an experiment[4] where each subject was presented with two personality sketches - Barnum profile and bona fide profile, and they had to rate each profile on a scale of 0 to 5. 59% of the participants rated their Barnum profiles to be more accurate over the genuine ones, where the Barnum profiles had 5 times more favorable statements.

Why do people accept socially desirable traits? It's because people want to be accepted by the society and hence they portray themselves as having those characteristics which are considered to be "good to have" in the society.

2.2 Base Rate

Base rate of a personality trait denotes how frequently that trait is observed in the people. Barnum statements are highly accepted because they are true for most of the people. Socially desirable traits with high endorsement rates (or base rates) rightly classify as Barnum statements. But what about traits which are desirable but have low base rates? Do social desirability and base rate 'jointly' affect Barnum profile's acceptance? These two questions were investigated in the first experiment.

2.3 Personalization

Acceptance of Barnum profiles also depend on their specificity, whether they are presented as 'personalized' or 'non-personalized'. In 1974 Snyder in his experiment[5] presented half of his subjects with their personalized profiles while other the half with the non-personalized ones. Subjects who got non-personalized profiles were told that the profile contained statements which were true of many other subjects while in case of personalized profiles, the subjects were first asked for their Date of Birth and were later presented with profiles with their names written on top. The results showed greater acceptance of personalized profiles.

3 Experiments

Based on social desirability and base rates, three different kinds of personality traits can be defined:

1. **Barnum Statements:** These are the traits with 'high social desirability' and 'high base rate'. E.g.- Fairness is an important value to you.
2. **Rare Virtues:** As the name suggests these traits have 'high social desirability' but are found rarely, 'low base rate'. E.g.- You are extraordinarily courteous to others
3. **Common Faults:** These are the traits with 'low social desirability' and 'high base rate', so these are some undesirable traits which are found frequently in the society. E.g.- You have said something bad about a friend behind his back.

3.1 Experiment 1

Roberta(2007) in [1] conducted an experiment to create a pool of these three different kinds of traits. The subjects in the experiment were given a set of personality traits and they were asked to rate them on two scales: 'Social Desirability'(0 to 5) and 'True of Self'(0 to 5). Though Barnum traits and common faults were quite easily found, the experiment failed in finding rare virtues. The

reason being that a high correlation was observed between social desirability and base rate, that is, the more desirable the item was, the more likely the subject was to rate it as true of himself.

The aim of my experiment was to investigate if any such correlation exists between social desirability and base rate. If not, then to collect the statements that satisfy the criteria of rare virtues.

3.1.1 Methodology

48 subjects (male and female) filled an online survey comprising of 23 candidate personality traits (mostly favorable/positive). They had to rate each trait on three different scales:

- Highly to least Socially Desirable
- Highly to least True of Self
- Highly to least True of Others

Rare virtues would be the items with an average rating ≥ 2.5 on scale 1 but low on scale 2 or 3 (< 2.5). The third option of ‘True of Others’ here was kept intentionally because the rating for ‘True of Self’ could get biased for highly desirable traits [6]. People would give a more realistic rating for others than themselves. Others here imply the people in our institute.

3.1.2 Results

The following table compares the ‘True of Self’(TOS) and ‘True of Others’(TOO) rating against their social desirability (SD) for some of the traits. It can be seen quite clearly that TOS for sufficiently desirable traits is significantly higher compared to TOO indicating the clear bias in the TOS rating. The first 9 traits (given below) with $SD > 2.5$ and $TOO \leq 2.5$ classify as Rare virtues. The TOS ratings being highly correlated with SD were not taken into consideration.

Personality Traits	Social Desirability	True of Self	True of Others
1. You never get irritated when things dont go your way.	3.2	2.2	2
2. If you see trash in street, you pick it up and throw it away.	3.35	2.75	1.85
3. You never gossip about people behind their backs.	3.4	2.6	2.2
4. When you offer help you expect nothing in return.	3.31	2.85	2.31
5. You are a very punctual person.	3.66	2.61	2.39
6. You find it easy to understand other peoples point of view even if they disagree with you.	3.75	3.45	2.45
7. You are exceptionally honest	3.16	3.41	2.5
8. You are exceptionally open-minded	3.61	3.80	2.5
9. You have never done anything you’re ashamed of	3.35	2.75	2.5

Figure 1 shows the high correlation between TOS and SD. Out of 23 personality traits only 2 classified as rare virtues. This result is not quite realistic given that the traits were highly positive and are hard to find in people these days. Figure 2 depicts SD vs TOO. This gave pretty good results, classifying 9 out of 23 as rare virtues. Figure 3 shows the plot of TOO vs TOS. It can be seen that most of the traits got a pretty higher rating on TOS than TOO.

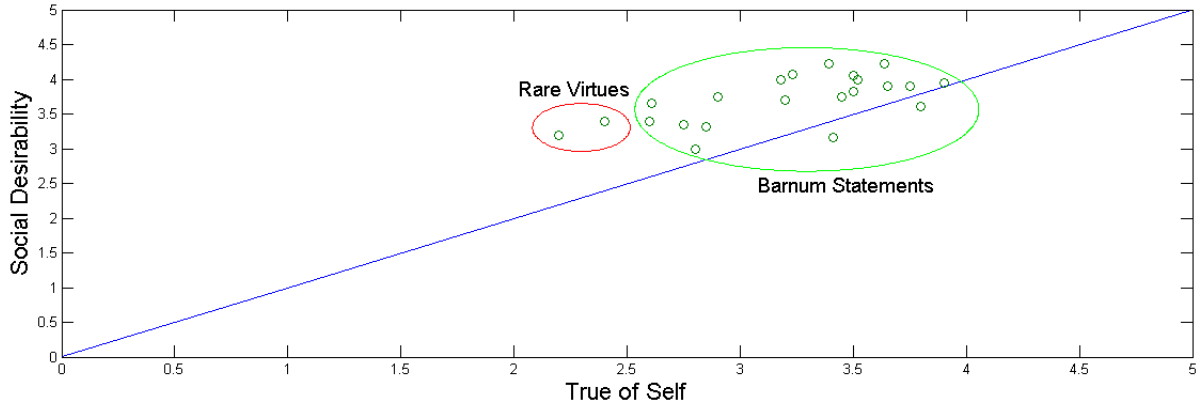


Figure 1: Social Desirability vs True of Self

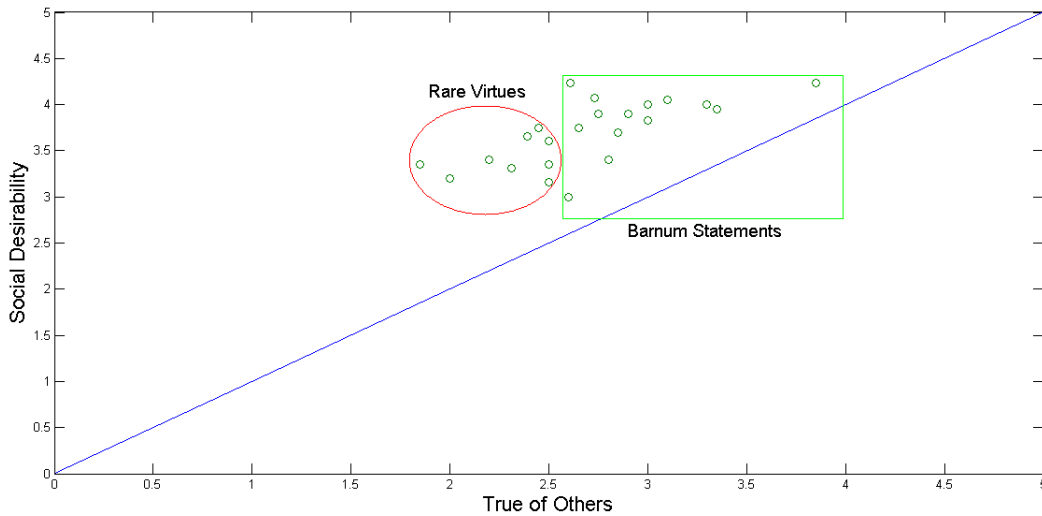


Figure 2: Social Desirability vs True of Others

3.2 Experiment 2

Experiment 1 resulted in a set of 9 rare virtues thus completing the pool of all three kinds of traits (Barnum statements and common faults were taken from Roberta(2007)). The aim of the second

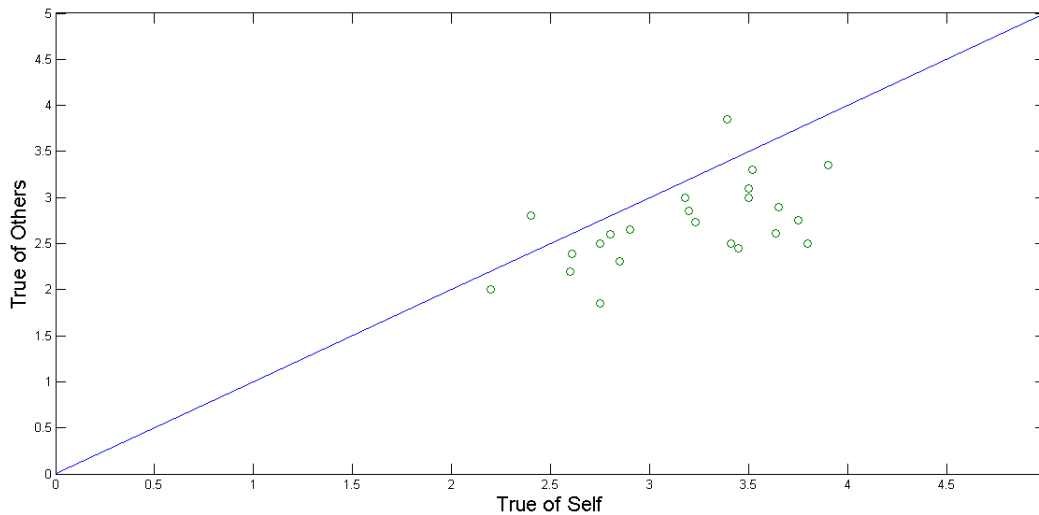


Figure 3: True of Others vs True of Self

experiment was to study the Barnum effect among the students of our institute and also how it is affected by social desirability, base rate and personalization.

3.2.1 Methodology

36 Subjects were told that the experiment concerned with evaluating a personality predicting software. Everyone was given 15 minutes to complete a personality test (Goldberg Personality Questionnaire [3]). Three days after the test, subjects were presented with their personality reports. There were six different kinds of reports: Barnum profiles, Common Faults and Rare Virtues each of which further had two versions: Personalized and Non-Personalized. Each subject was then asked to rate how accurately the report defined their personality on the following scale:

- 1 - Absolutely rubbish
- 2 - slightly
- 3 - quite
- 4 - Very much
- 5 - Extremely accurate

Following are the 3 different kinds of profiles used in this experiment:

Barnum Profile

“Fairness is an important value for you. With maturity, you have become more receptive to others’ point of view. You have a great need for other people to like and admire you. You value people who allow you to be yourself without censure or judgment. At times you are extroverted, affable, sociable, while at other times you are introverted, wary, reserved. Being able to converse is important to you. Having the means to get where you want to go is important to you. You value your alone time. You feel that it is important for people to work together in peace. Although you have a serious side, having fun is important to you. You enjoy buying gifts for your loved ones. In

relationships you want an equal partner rather than a competitor.”

Rare Virtues

“You seldom get irritated when things don't go your way, you're very adjusting. If you see trash in street, you pick it up and throw it away. You never indulge in gossiping about people behind their backs, you consider it something very lame to do. When you offer help you expect nothing in return. You are a very punctual person and meet all your deadlines well in time. You are very understanding and open minded. You find it easy to understand other people's point of view even if they disagree with you. You are an extremely reliable person. You have a strong tendency to forgive and forget. You never get jealous over the good fortune of others.”

Common Faults

“You don't always know the reasons why you do what you do. You've done something you were ashamed of. There have been times you felt like rebelling against authorities, even though you knew they were right. There have been occasions you felt like smashing things. You have talked bad about someone on occasion. You sometimes make judgments based on how someone looks. You have lost out on something because you couldn't make up your mind soon enough. You have bought something even though you knew you didn't have sufficient funds to do so. You will sometimes lie to a friend to get out of going somewhere or doing something. Occasionally you have come to class unprepared for a presentation or exam. ”

Subjects who were given Personalized profiles were asked for their Date of Birth in the personality questionnaire. Later the profiles they were presented with had their name printed on top. People who were given non-Personalized profiles were told that statements in their profile were in general true for everyone having the same sun-sign as theirs.

3.2.2 Results

There were 36 subjects in total and 6 profiles. Thus every 6 out of 36 got same profiles. Following table analyzes the average ratings (on a scale of 1 to 5) as well as the standard deviation for each profile.

Personalization	Barnum Avg(Std Dev)	Rare Virtues Avg(Std Dev)	Common Faults Avg(Std Dev)
Personalized	3.87(0.76)	3.25(0.96)	1.75(0.5)
Non-Personalized	4.00(0.55)	3.00(1.16)	2.25(0.96)

As is evident from these ratings, Barnum profiles showed the greatest acceptance of all the three profiles with an average rating of 4/5 while Common Faults got the least average rating of around 2/5. Also most of the profiles got a rating greater than 2. In case of Barnum Profiles standard deviation is least compared to the other two profiles. Rare virtues showed a comparatively higher standard deviation. The reason for this could be that these traits were extremely good and hence flattering. So many subjects being flattered gave a higher rating while many found it way too good and gave a low rating. Non-Personalized Common Faults showed greater acceptance compared to the Personalized one. One explanation for this could be that a person in general has a tendency to accept his faults if he's told that most of the people of his type has this fault. However if he's been told that he has some flaws specifically he might hesitate accepting them.

Figure 4 and Figure 5 are the bar graphs of the results of the above experiment and the similar experiment conducted in Roberta(2007), respectively.

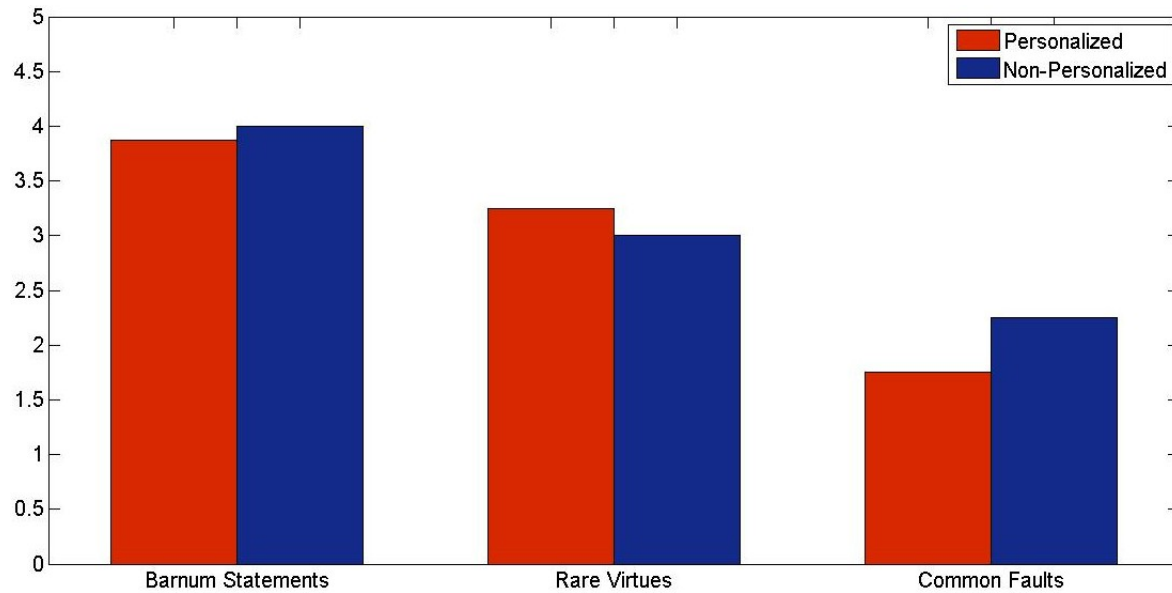


Figure 4: Avg rating of Barnum Profiles, Rare Virtues and Common Faults

The ratings of Barnum Profiles and Common faults are quite in accordance with Roberta(2007) except for personalization results.

4 Conclusion

This project studied the prevalence of Barnum effect among the students in our institute. It further investigated the influence of social desirability, base rate and personalization on the same. The results showed that traits which are highly desirable and have high endorsement rates show greater acceptance while personalization of profiles showed no significant improvement.

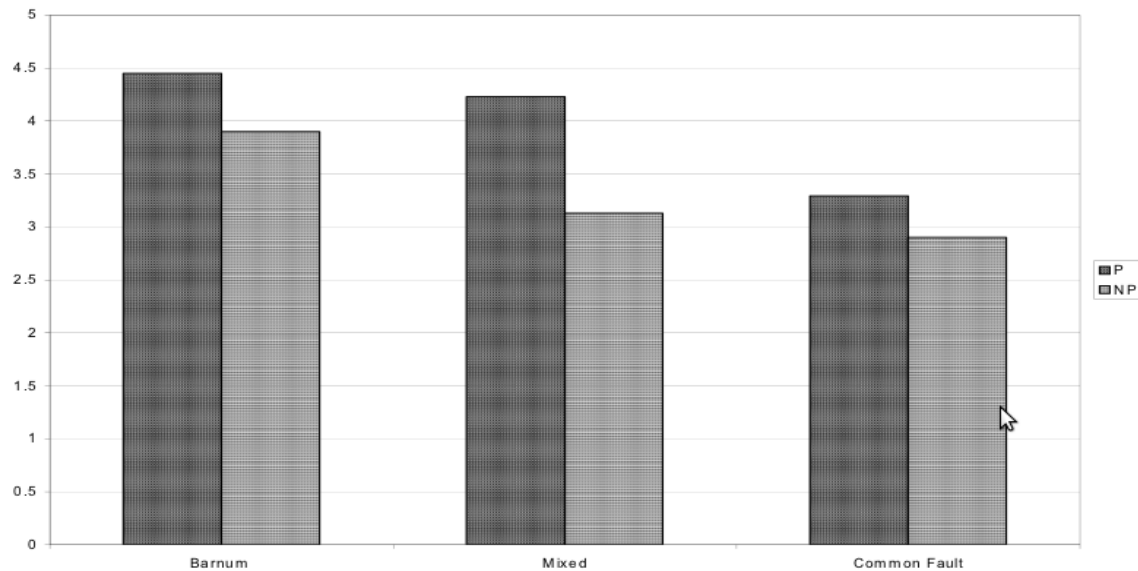


Figure 5: Avg rating of Barnum Profiles, Common Faults and Mixed profiles in Roberta(2007)

5 References

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