

Exploring Whether the order of revealing the good or bad information will affect the perception of perpetrators? A Mini Review of The Halo Effect

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Abstract. Through the understanding of the halo effect, this experiment aims at college students, and then the content of the experiment is whether students' cognitive attitudes towards some criminals will be affected by the sequence of exposure to other high-quality qualities of criminals. This experiment uses the experimental method of controlling variables to test students' attitudes towards criminals through two self-written cases, so as to reduce the influence of students' existing cognition of real cases. The overall experiment will be divided into two groups of experimenters, and the final conclusion is that the order of revealing good or bad information does affect the participants' sympathy for perpetrators, and the exposure of good information is positively related to sympathy for the perpetrator, and vice versa.

Keywords: Halo Effect, Cognitive bias, Perpetrators, Perception.

1. Introduction

In daily life, there is a cognitive bias that people will have different perceptions of something or someone because of the difference in the information received, which is explained as the Halo Effect. Therefore, this research wants to find out that the type of information may/may not affect the perception of the perpetrators. Concerning the question, the concept of the order of revealing the good or bad information is how the participants receive the good or bad information about the perpetrators, which can be good comments from others about the perpetrators or some bad news like their criminal behaviours. How the information affects the perception of perpetrators, which means participants are more sympathetic or more reluctant to the perpetrators (Richard, & Timothy, 1977).

2. Hypotheses and Methodology

2.1 Hypotheses

1. The order of revealing good or bad information will affect the participants' sympathy of perpetrators.
2. Exposure to good information first will increase the participants' sympathy for perpetrators, while exposure to bad information first will decrease the participants' sympathy for perpetrators.

2.2 Methodology

2.2.1 Participants

The The population in this experiment is the university students in Hong Kong and the sampling method used in this research is convenience sampling. Accordingly, the relevant emails will be sent to the surrounding university students to collect and select applicable volunteers. This experiment has two questionnaires, namely the screening questionnaire and the experimental questionnaire (in **Appendix 1**).

Your gender

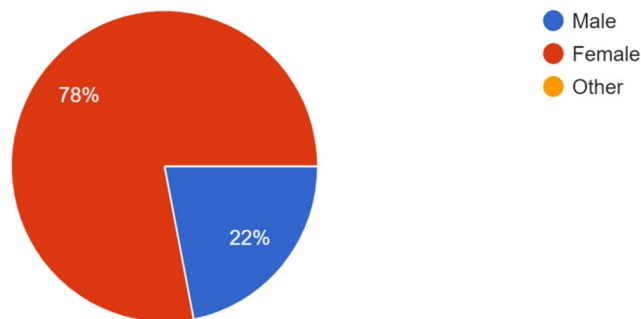


Figure 1 Gender of participants.

Have you ever heard of any case below? (Selected from the following related cases)

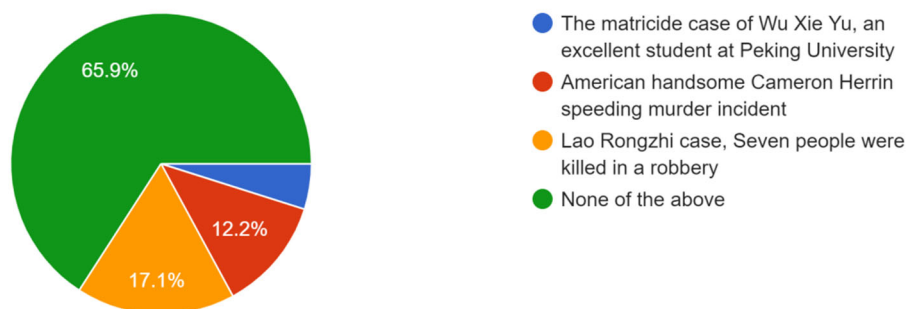


Figure 2 Participants' knowledge of relevant cases.

The screening questionnaire was commenced via the Internet on November 30, 2021, with a duration of four days. A total of 41 questionnaires were returned, with a valid rate for the next experimental questionnaire of 58.54%. The ratio of males to females is 22% to 78% (Figure 1), and 65.9% of respondents have never heard of this kind of similar case. (Figure 2).

Moreover, eliminated invalid data (no emails were provided for further experiments), the researchers screened 24 volunteers (5 males the 19 females), who were evenly be divided into Group A and Group B. The age and education background of experiential participants is allocated as shown in Figure 3 and Figure 4.

Your age

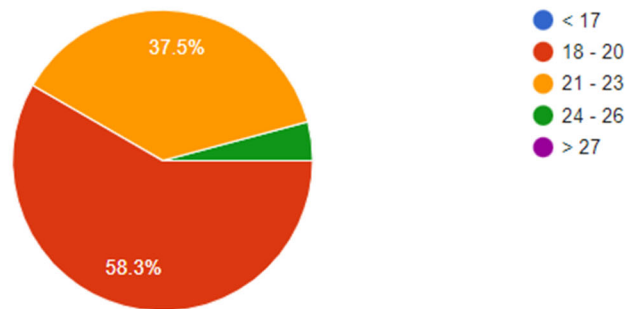


Figure 3 Age of participants.

What year do you major in?

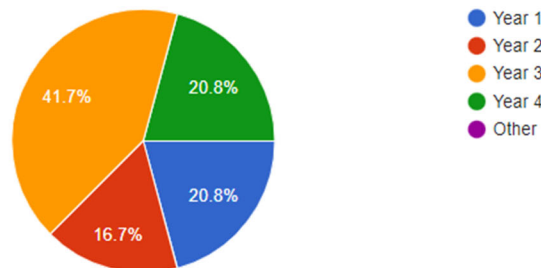


Figure 4 The grade of the participant.

2.2.2 Experimental Design

The principle of this experiment refers to the Halo Effect, furthermore, the goal of the experiment is to find out if the halo effect exists in some criminal cases. The experimental cases to test the halo effect were particularly created based on the real cases of reality (in **Appendix 4**). Two experimental cases with similar content but the descriptions in a different order were presented (in **Appendix 2**). The difference between the two cases is the order of revealing good or bad information. After reading either one of the cases, the screened participants need to finish the experimental questionnaire to test the sympathy of perpetrators.

- **Between-subjects design:** This experiment controls sequence effects by controlling order. The difference between the experimental cases is the order of revealing good or bad information. After reading one of them, participants need to complete the experimental questionnaire about the sympathy of perpetrators.
- **Independent variable:** The order of revealing good or bad information (refer to experimental cases ---- Case A and Case B (in **Appendix 2**))
- **Dependent Variable:** The sympathy of perpetrators (The level of sympathy or disgust to the perpetrators)
- **The level of the independent variable:** 2 levels of “revealing good or bad information”: {Good information first ---- Case A, Bad information first ---- Case B.

2.2.3 Experimental Cases and Materials

The experimental cases were fabricated by combining real cases. In order to make the experimental cases more authentic, the head picture of the perpetrator in the cases was provided (in **Appendix 2**). In order to avoid some unnecessary trouble, the face in the picture was modelled by AI specifically to achieve the description of the appearance in the case.

In addition, the questionnaires survey was also adopted, and the link of the questionnaires are also in appendix 2. The questionnaires were made by Google Form, the data reported by the participant was automatically recorded. The screening questionnaire mainly collected the basic personal information about the participants and screened the participants who have not heard of similar cases, as well as the experimental questionnaire that collected the basic information and tested their attitude towards the case and perceptions of the perpetrator.

2.2.4 Experimental Procedure

By searching some real cases which have public opinion disputes in real life, the experimental cases (Case A and Case B) (**Appendix 2**) were designed in order to avoid unnecessary confounding variables (E.g., the preconceived notions of some participants who already know real cases). For Counterbalancing, this experiment adopted a Randomized order, in which the participants into two groups (Group A and Group B) will be assigned randomly. The participants of Group A read the experimental case A, while the participants of Group B read the experimental case B. In order to avoid influence between participants, the opposite information disclosed by participants in the other group was confidential. The experimental cases were sent to the screened and grouped participants along with the experimental questionnaire (**Appendix 1 & 2**). After the participants finished reading the case, they need to fill in the experimental questionnaire. The experimental questionnaire can help to find out whether the order of revealing the good or bad information will or will not affect the sympathy of perpetrators. After the data collection was completed, jamovi was utilized to do data analysis for the correlations between variables.

2.2.5 Confounding Variable

Confounding variable 1: The participants heard about the real case. Since the experiment cases are based on the real case of the matricide case of Wu Xie Yu, an excellent student at Peking University and American handsome Cameron Herrin speeding murder incident creates (in **Appendix 4**). If the participants heard the news before, their perception of perpetrators may not be affected by the order of revealing the good or bad information. There is a question on the screening questionnaire: Have you ever heard of any case like this? If the participants answer that they heard the news before, they will not be able to join in the next step.

3. Result Analysis

There are five questions in the experimental questionnaire, which was via the Internet on December 6 with the duration of one day. The specific process of sending emails about experimental cases and questionnaires is in **Appendix 3**. According to the data (**Figure 5**), men make up less than a quarter of the respondents. As illustrated in **Figure 6**, about half of the participants reported high levels of sympathy, while less than half reported low levels.

Your gender

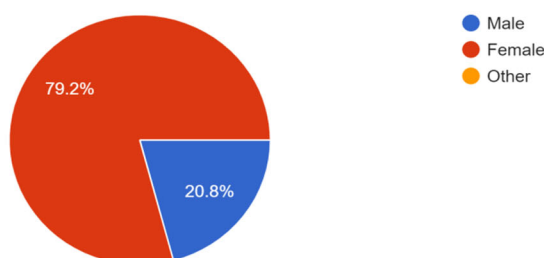


Figure 5 Gender of participants.

How much sympathy do you have for Jeffery?

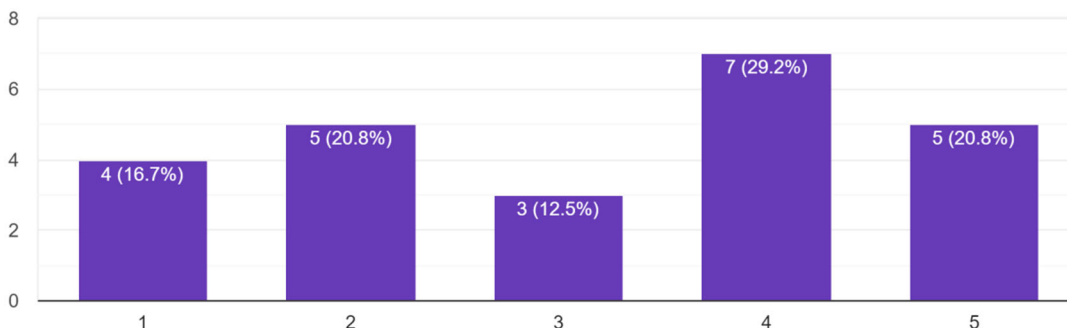


Figure 6 Participants' attitudes towards crime.

Table 1 Description of basic data in two cases.

Descriptive	Which cases are you in?	How much sympathy do you have for Jeffery?
N	Case A	12
	Case B	12
Missing	Case A	0
	Case B	0
Mean	Case A	4.417
	Case B	1.917
Median	Case A	4.000
	Case B	2.000
Standard deviation	Case A	0.5149
	Case B	0.7930
Minimum	Case A	4
	Case B	1
Maximum	Case A	5
	Case B	3

First of all, it can be seen from **Table 3.1** that the total amount of samples in Group A and Group B is equal to 12 people in each group. Moreover, the mean of Group A is 4.417, which is higher than that of Group B at 1.917, and the median of Group A reached 4, which is also higher than that of Group B at 2. From the maximum and minimum values, it can be seen that Group A, who read Case A, showed higher sympathy for the perpetrator, whereas Group B showed more aversion to the perpetrators.

3.1 Findings of Hypothesis 1

Through the Independent Sample T-test in Jamovi, Hypothesis 1 is tested, and the following **Table 2** is obtained, which can be drawn the conclusion that there was a significant difference in the sympathy of perpetrators between Group A (M = 4.417, SD = 0.5149) and Group B (M = 1.917, SD = 0.7930), $t(22) = 9.160, p = 5.816e-9, d = 3.739$. In other words, the order of revealing good or bad information does affect the participants' sympathy of perpetrators. Therefore, hypothesis 1 is verified to be true.

Table 2 The results of Interdependent T-test (Hypothesis 1).

Independent Samples T-Test								
		Statistic	df	p	Mean difference	SE difference		Effect Size
How much sympathy do you have for Jeffery?	Student's t	9.160	22.00	5.816e-9	2.500	0.2729	Cohen's d	3.739

Homogeneity of variance test (Levene's)					
		F	df	df2	p
How much sympathy do you have for Jeffery?		0.8197	1	22	0.3751

Note. A low p-value suggests the assumption of equal variance

Group Descriptives						
	Group	N	Mean	Median	SD	SE
How much sympathy do you have for Jeffery?	Case A	12	4.417	4.000	0.5149	0.4186
	Case B	12	1.917	2.000	0.7930	0.2289

3.2 Findings of Hypothesis 2

Through the Independent Sample T-Test in Jamovi, Hypothesis 2 is tested and the following **Table 3** is obtained, which can be drawn the conclusion that Group A's sympathy of perpetrators (M = 4.417, SD = 0.5149) was higher than Group B's sympathy of perpetrators (M = 1.917, SD = 0.7930), $t(22) = 9.160$, $p = 2.908e-9$, $d = 3.739$. In other words, exposure to good information first increases the participants' sympathy for perpetrators, while exposure to bad information first decreases the participants' sympathy for perpetrators. Therefore, hypothesis 2 is verified to be true.

Table 3 The results of Interdependent T-test (Hypothesis 2).

Independent Samples T-Test								
		Statistic	df	p	Mean difference	SE difference		Effect Size
How much sympathy do you have for Jeffery?	Student's t	9.160	22.00	2.908e-9	2.500	0.2729	Cohen's d	3.739

Homogeneity of variance test (Levene's)					
		F	df	df2	p

How much sympathy do you have for Jeffery?	0.8197	1	22	0.3751		
Note. A low p-value suggests the assumption of equal variance						
Group Descriptives						
	Group	N	Mean	Median	SD	SE
How much sympathy do you have for Jeffery?	Case A	12	4.417	4.000	0.5149	0.4186
	Case B	12	1.917	2.000	0.7930	0.2289

4. Discussions

4.1 Methodology Analysis

The methodological issues in this experiment are the small loopholes in the operation between the screening questionnaire and the experimental questionnaire. For example, when issuing screening questionnaires, they could only be sent to surrounding university students due to technical reasons, resulting in the lack of generalizability of experimental results. In addition, since the two questionnaires were distributed separately, it was difficult to collect the follow-up experimental questionnaires, so it was necessary to find participants one by one for the next experimental questionnaire, resulting in the lack of confidentiality in the experimental process. Another reason for the experimental error is that in order to distinguish group A and group B in the experiment, Case A and Case B had to be marked when sending experimental cases and questionnaires to the screened participants, which may cause some experimental deviation. The main reason for these problems is that this experiment was conducted on the Internet as a whole, and many operations could not be well controlled. A better solution is to screen participants through email, and then conduct face-to-face cases reading and experimental questionnaire testing, which is highly efficient and reduces irrelevant variables.

4.2 Potential Confounding Variable(s)

Potential confounding variable 1: Participants' own tolerance of vicious cases and their ability to empathize with perpetrators. Because of different personality traits, each person's view of a case can be influenced by his or her own personality, values, or other personal experiences. In this experiment, the participants were not screened in this aspect, because there were large population differences in this aspect so that it was difficult to screen out participants with similar personality traits, namely, their own tolerance of cases or empathy for perpetrators. In addition, because this experiment is carried out in a specific situation, whose experimental cases were also fictitious. Therefore, the influence caused by this confounding variable is small and difficult to control, so this experiment ignores and does not control this confounding variable. If the corresponding experiments will be taken in the future, maybe they can improve on this.

4.3 Limitations

The most major limitation of this experiment is the sample. Firstly, the scope of samples selected was limited, only surrounding university students, which is not targeted and vague, resulting in reduced effectiveness of experimental results. Secondly, the sample size is too small. At the end of this experiment, only 24 participants were collected, with a large gap between the number of men and

women. This is a problem that was discovered as the experiment progressed, which is that it was very difficult to collect a large enough sample, especially after screening questionnaires, leaving only about half of the valid participants. This is a far cry from the original draft of finding enough and equal numbers of men and women. Too small sample size and fuzzy experimental subjects led to reduced generalizability and validity of experimental results. While convenience sampling is a good form to collect data, it is also known for its bias. In a future experiment, it is better to diversify the sampling method to not only rely on convenience sampling and thus diminish as much the sampling bias. There is only one scenario of the research (case A and case B), the result of these two cases may not be enough to reflect the Halo effect. The suggestion of this limitation is it can provide more scenarios to participants to choose to combine the results of different scenarios.

4.4 Suggestions

Some methodological and technical problems in this experiment, as well as limitations of experimental design, have been mentioned above. If researchers conduct similar experiments in the future, they should first make the selection of samples more representative, such as a specific region or a wider range of subjects and expand the sample size. In addition, there are some limitations in the experimental design, which can enrich the cases and make the results more convincing. Moreover, more easily controlled methods should be adopted in experimental operation, such as conducting follow-up experimental steps face to face. Furthermore, there are fewer questions in the questionnaires of this experiment. If possible, more detailed screening of the questionnaire can be carried out in the future experiment to reduce confounding variables, and more questions can be added to the experimental questionnaire to reflect participants' attitudes towards the case, so as to facilitate deeper research.

5. Summary

This experiment was designed by subjects to avoid a large number of confounding variables. The existence of the halo effect was demonstrated relatively effectively by the effect on the sympathy of the aggressors in the order of revealing good and bad information. However, there are still some limitations of this experiment, such as the limitations of the sample and the difficulty of controlling the personality of the participants, and some improvement methods and future directions for the experiment are suggested. Therefore, future experiments on the halo effect could focus more on this aspect or explore individual participants in populations where the halo effect is prevalent.

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