Gender Bias Induced by Stereotypes
People's Perception of Gender of a Gender-unknown Subject in a Fictional Scenario

Ziyi Fan[1,*,†] Xinyuan Liu[2,†]

[1] *No.1 Middle School of Zhengzhou, Zhengzhou, Henan, China*
[2] *Kangchiao International School East China Campus, Suzhou, Jiangsu, China*
Corresponding author. Email: hesh@stu.zzu.edu.cn
†*Those authors contributed equally.*

ABSTRACT

This research mainly studies how do gender stereotypes play out in people's lives and how people will subconscious through events type to determine the gender of one person. The study was conducted through a survey (N =89) that asked the participants to comment on a paragraph containing gender-specific events and inferring the perception of the subject's gender by finding out the personal pronouns they used in the answers. A statistical difference is find in the results, people tend to habitually use "he" when it is not gender-specific. For events with a gender stereotype, people are more likely to identify the protagonist as that gender. If there is future research, the research will take a closer look at why people use personal pronouns like "he" frequently rather than "it" or some other subjects.

Keywords: Gender Stereotype, Unconscious Bias, Personal Pronoun

1. INTRODUCTION

1.1. The Significance of studying gender bias

Gender bias is an unavoidable and pervasive thing that often appears in various places such as schools, companies, and so on. It's even more pronounced among women.

There is a very realistic situation: if a pregnant has given birth when she returns to her post, two things will happen. First, her job is replaced by someone else, the company gives her unemployment compensation, she loses the job. Or she can get back to her job, but many of their colleagues will ask them different questions with a tone of disdain. For instance, how to combine her work and her family at the same time, how to lead the children to grow up normally without being lack of maternal love. The basic reason why sexism always exists is gender stereotypes. It happens especially on the unequal treatment of women by men, the inequality between the sexes causes gender discrimination in society. Stereotypes mainly refer to gender-fixed views formed by people on a certain thing or an object, and this view is extended to a wide range of people, believing that the thing or the whole has the characteristics, while ignoring individual differences.

When talking about "discrimination", there might be a thought about the differential treatment of the two groups, and correspondingly, at a time when women are high enough, both men and women are given enough freedom that they are likely to do the same things separately. Why does discrimination exist? It probably comes from people's cognition [1] and positioning of themselves. Everyone has to locate the various tags on their body. Human cognition tends to be label-based because the brain doesn't want to put much effort into thoroughly understanding something that may not be useful to us. Since people have positioned for themselves, it will also have positioning for others. Sexism is persistent because people's brains tend to preserve the already existing thoughts [2]. Whatever the stereotype is, it is ultimately an oversimplification, there will always be "a few people" who don't fit in the stereotype. When you encounter a situation that doesn't fit the actual situation, is it easier to admit that you made a mistake, or to decide, "The troublemaker made a mistake?" Of course, it's easier and easier to force the disruptive person to conform to expectations when something doesn't, especially when you have a lot of other people to deal with. It is precise

because of the tendency of both men and women to impose upon the few who do not meet their expectations that classic sexism arises [3]. So the main focus of this study is to discover what is the pattern of the stereotype of a normal people and how might they respond without being interrupted by being careful of their subconscious.

1.2. An Overview of this Study

During this whole investigating process, the study needs to know how people use personal pronouns in daily life. A questionnaire is used for data collection, which is highly efficient and can ensure the objectivity of data, and everyone's answers will not be affected by some subjective reasons. At the same time, a questionnaire survey is convenient for us to collect and sort out data, and the results can be clear at a glance. In total, 113 responses were received. Among them, 89 are valid for analysis. The survey contains 8 fictional scenarios stripped out gender-specific pronouns and descriptions of people's specific characteristics to allow respondents to see bias in these different situations. The use of personal pronouns such as "he" or "she" in their answers is an indication of people's gender bias against men and women in general. Inference is drawn by analysing the following factors: the relationship between different time types and the answers; the other is the relationship between demographic information and response

For convenience, this study only focused on the unconscious stereotypes posed on the two binary genders (male and female) [4]. "Genders" in the content below also automatically refer to these two genders.

Throughout the whole study:

The text provided to be a comment on in each survey question is a "scenario".

Subject refers to the main character of each scenario. The person who conducted the behaviour that is related to the stereotypical element.

Perception refers to the respondent's judgment of the subject's gender (male or female)

A response containing signs of a participant's perception of the subject's gender is called a gendered response.

2. METHOD

2.1. Participants

Samples were taken from three high schools in different cities, namely No. 1 Middle School of Zhengzhou in Henan province, Shenzhen International Exchange College in Shenzhen and Kangchiao International School East China Campus in Suzhou. All the high school students who participated in the questionnaire survey were aged between 16 and 18 and

in good physical condition. The questionnaire was filled in anonymously, without personal information leakage and with the consent of the applicants and the school. This time, the questionnaire was distributed by the author to the students in the school. The tester was unfamiliar with the surveyors, so the answers did not have any personal feelings and were not paid for answering the questionnaire. At the end of the questionnaire, the subjects were shown the purpose of the experiment. In total, 113 responses are collected. Eliminating meaningless responses, 89 valid responses are used for analysis.

2.2. Materials and Design

To better reflect the language habit of a Chinese student, the survey is made and the responses are collected in Chinese. The survey was given to the students in an online form, containing 8 questions. In each question, they are presented with a scenario containing stereotypical behaviour of one of the genders. Without knowing the gender of the subject, the student was asked to comment on the behaviour of the subject in the scenario. The pronouns used to address the subject in the comment are collected as evidence of the student's perception of the subject. The independent variable of this experiment was the factors that caused people's stereotype in different events, and the dependent variable was the respondent's judgment of the gender of the characters

Scenarios containing stereotypical behaviours of both genders are included. Base on a 1998 study about the stereotypes in media by Yuan Feng [5], 4 of the most presented stereotypical elements along with each gender in the 8 leading news media in China are selected to be put in each question. To control confounding, both positive and negative events about both genders are included. Therefore, the eight questions fall under four categories:

Table 1. Four categories of question

	Male	Female
Positive	Male Positive	Female Positive
Negative	Male Negative	Female Negative

*Male positive refers to a scenario describing a positive event that contains a stereotype element for males.

The 8 elements are then randomly assigned to be used to create positive or negative scenarios:

Table 2. Eight events selected

Scenario	Element	Scenario	Element
Male positive 1	Successful Career	Female positive 1	Family Education
Male positive 2	Politics	Female positive 2	Independence after Divorce
Male Negative 1	Sexual abuse	Female Negative 1	Make up
Male Negative 2	Violence	Female Negative 2	Body Image

The original text and the translation of one of the questions from the Male Negative category are provided below:

Original text (Which is put in the survey):

一个人在下班后因工作上的不顺，来到一家大排档吃夜宵喝酒解闷。正吃着，听到隔壁桌的几个人正大声交谈，炫耀着自己的财富和地位。这人听得不爽，便随口说了一句，"切，有什么了不起的。"隔壁桌的人听到后，两边立马起了争执。这人本来心情就不好，加上性格急躁，就直接拿起酒瓶往对方头上砸去，把对方砸得头破血流，当场晕倒。随后这个动手的人就被拘留了，但在派出所的时候，仍然坚持认为自己只是在正当防卫。

Translation (for paper readers to understand):

To release the stress from work, a person went to a bar and had some drinks. While drinking, the person overheard people from a neighbouring table bragging about their wealth and social status. Feeling frustrated, the person blurted out saying "Burh, what's so impressive about that? "An argument soon arose as the crowd caught the words. Already feeling irritated and being characteristically snappy, the person hit another with an alcohol bottle, blood was everywhere. After the incident, the person is arrested, yet still believed the act is out of self-defence.

To make respondents' answers authentic and natural, and not disturbed by any external conditions, the real purpose of the study was hidden from the participants at the beginning of the study. The survey was given out as a social survey about people's opinions on these events [6]. To further enhance the effect, there is only one question on each page, so even if the participants realized the purpose of the study, they can't go back and change their answers. The true purpose of the survey was revealed once they finish the survey.

2.3. *Procedure*

The whole experiment takes about ten to fifteen minutes. The subjects received the questionnaire through WeChat, QQ or other social software, and answered the document by scanning the QR code. When entering the questionnaire interface, you need to fill in the gender and age of the respondent first, and then answer the eight questions in the questionnaire. Click submit button after answering, the answer has been transmitted to the hands of the tester. After submission, the questionnaire is automatically redirected to a page with an explanation of the true purpose of the study, so that the respondents know the true purpose of the questionnaire they completed.

3. RESULTS

In each of the questions, the number of gendered responses is counted as follows:

Table 3. Gendered responses received for each scenario

Scenario	He	She	Both	No pronoun/Other
Male Positive 1	18	0	0	71
Male Positive 2	18	0	1	70
Male Negative 1	14	0	0	75
Male Negative 2	19	0	0	70
Female Positive 1	12	0	1	76
Female Positive 2	3	4	0	82
Female Negative 1	3	1	0	85
Female Negative 2	3	3	2	81

A Chi-square test is conducted to determine the difference between the results yielded from male and female-inclined questions. The expected values are calculated by assuming that each question has the same chance of receiving a gendered response for each gender.

Table 4. Expected values

	Male	Female	Both	Other/No pronouns
All Female-inclined questions	45	4	2	305
All Male-inclined questions	45	4	2	305

*Both refers to the participant used both male and female pronouns in their comment.

Table 5. The actual values (from the data)

	Male	Female	Both	Other/No pronouns
All Male-inclined questions	69	0	1	286
All Female-inclined questions	21	8	3	324

$\chi^2 = 36.97$

$p = 0.000000047$

(Rounded to the nearest hundredth)

4. DISCUSSION

This paper found that there is a statistically significant difference in the number of responses orientated toward one gender received by the two groups of questions. Male behaviour in stereotype helps to identify a person as a male, and the stereotypical female behaviour is more likely to be recognized as female.

Other interesting patterns are also found in the data. Nevertheless, in Chinese (it may be caused by Chinese usually using the personal pronoun he by default when they don't know each other's gender), in describing many questions about women, some respondents would use 'him' to answer; However, in the answer to the questions about describing women, no one used 'her' [7].

For the questions describing men, the respondents prefer pronouns. On the contrary, for the questions describing women, most respondents avoided the use of the pronoun. For some problems with relatively strong gender discrimination, not only pronoun, but some people also even directly make their own opinions and write down the gender of the protagonist judged by themselves.

There are also limitations of the study. First, although the results are statistically significant, the order of the questions is not random that might make the participant aware of the patterns in them. The length of the questionnaire may make readers bored and eventually unwilling to continue. Second, the questionnaire and the answers were in Chinese. In Chinese custom, "he" is the default address for people who do not know their gender, so the number of "he" is significantly more than "she" [8]. At the same time, because the questionnaire contains a long paragraph of language and lacks reference to previous research, in addition to the stereotype elements contained in the incident, the wording of the question may also affect the respondent's judgment, which may be too obvious or even impossible to judge at all. Since the purpose of the study is not revealed, it's not guaranteed every response will contain an implication about gender. It may be necessary to expand the sample size even further or use a method that eliminates as many Conversions as possible so that the intent of the topic is both apparent and undetectable

5. CONCLUSION

As can be seen from the survey results, gender bias could be expressed in an unaware situation, which means people can hut others unconsciously, and eliminating explicit bias is far from enough. Gender stereotypes and biases don't just hurt women, they hurt men too. For example, there are stereotypes saying that little boys will play with motorcycles and video games, and only boys play sports like basketball while girls will play with Barbie dolls [9]. But there are a lot of little girls who like video games and enjoy playing sports [10].

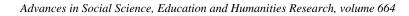To fight these stereotypes, the study in this area needs to continue.

AUTHORS' CONTRIBUTIONS

This article was completed by two students, and the division of labour is as follows:

In the questionnaire survey, the questions and scenes involved in the questionnaire were discussed and completed by two students. After the questionnaire was completed, two students distributed questionnaires to their friends and in their own schools. All the answers obtained from the final questionnaire were summarized, and the data analysis part involved in the paper was completed by Xinyuan Liu, Ziyi Fan was responsible for most of the paper writing and searching for references needed or articles related.

REFERENCES

[1] "Cognition ＿ Baidu Encyclopedia." Baidu Baike,https://baike.baidu.com/item/%E8%AE%A4%E7%9F%A5/12815064?fr=aladdin.

[2] New knowledge answer main wu Chang 'an .css-1cd9gw4{margin-left:.3em;}.css-n99yhz{box-

sizing:border-box;margin:0;min-width:0;color:#175199;display:inline-block;margin-left:.3em;}.css-18biwo{display:-webkit-inline-box;display:-webkit-inline-flex;display:-ms-inline-flexbox;display:inline-flex. How are "stereotypes" formed, what are their effects, and how can they be eliminated?." Zhihu, 8 Mar. 2019, https://www.zhihu.com/question/315079706/answer/1585895922.

[3] Sczesny, Sabine, et al. "Can Gender-Fair Language Reduce Gender Stereotyping and Discrimination?" Frontiers, Frontiers, 1 Jan. 1AD, www.frontiersin.org/articles/10.3389/fpsyg.2016.00025/full.

[4] Sendén, Marie Gustafsson, et al. "Biases in News Media as Reflected by Personal Pronouns IN Evaluative Contexts." Social Psychology, www.academia.edu/26250688/Biases_in_News_Media_as_Reflected_by_Personal_Pronouns_in_Evaluative_Contexts.

[5] Feng Yuan." Women's Presence in the News: A research report on the news pages of eight leading newspapers." Zhejiang Journal.02(1998):oi:10.16235/j.cnki.33-1005/c.1998.02.018.

[6] Css-1cd9gw4 {margin-left:.3em;} css-1cd9gw4{margin-left:.3em; margin-left:.3em; margin-left:.3em;}. "Is it better to use real names or anonymous questionnaires?." Zhihu, 25 Dec. 2017, https://www.zhihu.com/question/264608957.

[7] "Sexism in mass media _ Love of scholarship." Love the academic, www.ixueshu.com/document/ee3f5d1acb12b91afb74a3061338d6a4318947a18e7f9386.html.

[8] "Tradition and modernity: On the Shaping of gender in mass Media _ Love of scholarship." Love the academic,www.ixueshu.com/document/be6c862ae782c1413138ea0b1d95498a318947a18e7f9386.html.

[9] "A Gender Perspective on Mass Media _ Love of scholarship." Love the academic,www.ixueshu.com/document/035f7dd25a73b9119baf20ff64f55edc318947a18e7f9386.html.

[10] "Journal of Physical Education for Adults." An Analysis of gender Consciousness in Sports Reporting _ Journal Papers _ Journal of Sports Adult Education, www.zz-news.com/com/tycrjyxk/news/itemid-569531.html.