

# Examining Impacts of Gender Bias in Chinese Education Systems

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## ABSTRACT

This paper aims to examine the impacts of gender bias within Chinese education systems. An experiment is proposed along with a list of its methods in order to explore the given research question. Through the experiment, results were predicted and future directions were detailed.

**Keywords:** gender, education, biases, china, rural, urban

## 1. INTRODUCTION

Since the times of Confucianism, the belief that men should hold the most power in society has always been something inscribed deep into the minds of many traditional Chinese families. Passed down from generation to generation, evidence has shown that gender inequality is still present today. The definition of gender inequality, according to the European Institute for Gender Equality [1], is when one is given unequal rights/treatment in a situation simply because of their sex.

Today, the ratio of boys to girls at birth remains an all time high. The sex ratio of China in 2019 was around 114 males for every 100 females [2]. This piece of statistics showcases the preference families have for the gender of their child: male. Numbers like such prove that gender inequality is still prevalent in large, developed countries like China.

Gender inequality is an issue present throughout a lot of people's childhood. According to a report published by the United Nations Children's Fund, the average years of education for teenagers, in rural and urban areas, was much lower for females than for males [2]. Issues like such have a much larger effect on children.

*Medical News Today* cited that the effects of gender inequality on mental health is profound. According to an article they published in 2020, women exposed to higher degrees of gender inequality are twice as likely to have generalized anxiety disorder, twice as likely to have panic disorder, and twice as likely to develop depression during their lifetime.

With this understanding, it is important to analyze

how and when gender inequality really causes the most impact throughout a person's life. Knowing that the age of adolescence is when a lot of growth and psychological changes occur, it is valuable to examine this period of a child's life.

The following study was conducted to explore how adolescents under the education system in China might be influenced by outward signs of gender inequality [3].

## 2. RESEARCH QUESTION

Between rural and urban areas in Shanghai, how does a teacher's explicit gender bias impact their student's academic performance in school?

## 3. HYPOTHESIS

Based on the background information, hypotheses were formulated in three different regards: females scores vs. males, rural vs. urban areas, and ingroup biases of teachers.

➤ *Female students taught by teachers with a higher gender bias score will ultimately score lower on the test than male students who were taught by the same teacher.*

➤ *Teachers in rural areas will have a higher gender bias score than teachers in the urban area. In addition, students in general will score lower in the rural areas than in urban areas.*

➤ *Teachers will show stronger in-group bias towards students that are the same gender as them.*

#### 4. PARTICIPANTS AND LOCATION

##### Freshman Students:

It was decided that freshman students are the most suitable target group for this experiment due to two main reasons:

1) Because freshmen are all new students on the first day of high school, teachers will have a fresh impression on all the students they end up interacting with. This ensures there are not any previous biases influencing their interactions [4].

2) In addition, not a lot of studies are conducted on adolescents in comparison to college students or infants. Yet, these few teenage years actually mark some of the most important stages of growth for children that would influence them for the rest of their lives. The study aims to bring more attention to this period of a child's life.

##### Teachers:

Teachers play a fundamental role in the development of a student. By examining gender biases of teachers, the study can showcase whether or not the Chinese education system and its intrinsic biases can negatively impact students.

##### Shanghai (Rural vs. Urban):

The study will be conducted specifically in Shanghai, China. This is because Shanghai is one of the most developed cities in China; however, it is also a city with a huge wealth gap. Farther away from downtown, there are many poorer and less developed areas. This contrast in such a diverse city allows for a stronger comparison between rural and urban areas.

#### 5. CONTROLS

Table 1: Controlled Variables of Experiment

Variable	Why Controlled?	How Controlled?
The age of the teachers	Teachers at different ages have different levels of experience, which might influence how they view specific students or how they might teach the lesson. In addition, from research it can be inferred that teachers in China that are closer to the ages 50-60 typically show stronger signs of gender bias than teachers in their 20s-30s.	This study is designed to control this factor by only selecting teachers ages 30-35 to participate. At this age, the majority of Chinese high school teachers have been teaching for around two to three years. They all have a similar level of experience.
The content given to teachers for their lesson	All teachers must be given the same requirements and the exact same content to teach the students. This ensures that the final scores the students receive on their test are not influenced by a different subject/having learned another piece of content.	Teachers will all be given the exact same piece of paper with all the content that they must teach during their 25 minute long lesson. They are not allowed to teach anything outside of what they are given, nor are they allowed to omit any information that was given.
Number of students teachers are required to interact with during lesson	Teachers must follow the requirement of interacting with 5 students. We chose 5 students because 1) it is an odd number so final data can show a clear bias towards either male or female instead of a tie, and 2) a constant number of interactions makes sure the collected data is fair and accurate between teachers.	This will be the biggest requirement that we will give them prior to their lesson. The team will approach each teacher individually to reinforce that they can only interact with 5 students and all 5 must be different students each time.

<p>Subject in which lesson is about</p>	<p>Some students are more knowledgeable in areas of humanities while some are better in the STEM field. To ensure that all students are on an equal playing field before they take the lesson, they must be taught on a subject nearly none of them have been exposed to before.</p>	<p>The study will require teachers to teach about the basics of psychology. Psychology was chosen because it is not a part of the Chinese local school curriculum until freshman year of college. In addition, psychology can involve a mix of both humanities skills through reading/writing, whereas also having problems using STEM skills such as analyzing graphs/data.</p>
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**6.METHODOLOGY**

1. Locate two local high schools in Shanghai: one each from rural and urban area.
2. Randomly select 20 teachers from the urban school. Make sure the teacher’s gender ratio is also equal: 10 female teachers and 10 male teachers).
3. Randomly select 400 freshman students from the school.
4. Randomly separate the 400 students into groups of 20, with 10 females and 10 males in each class.
5. Assign ONE teacher to ONE group of 20 students.
6. Ensure that there are 20 experimental groups in total who will perform the experiment.
7. Hand out consent forms to every participant of the study.
8. If all forms are signed, begin the experiment by handing out a sheet of instructions to each teacher prior to them meeting their student group.
9. Ask all teachers to familiarize themselves with the requirements and content they must teach to their group in 25 minutes.
10. While teachers are studying the material in another room, set up a hidden camera in the corner of the classroom to overlook the entire lesson.
11. After, ask teachers to wait in their room while their student group is brought into the classroom with the camera.
12. After students are seated, ask the teacher to enter the classroom too and begin their lesson.
13. After the lesson is complete, students and teachers are free to go.
14. Three days after the lesson, students are brought back into the same classroom and asked to take a short 20 minute test on the content that was taught.

15. Once students complete the test, collect them and they are free to go. This marks the end of the experiment.
16. Rewatch the video tape of the lesson and record how many times the teacher interacted with males versus females.
17. Grade the student tests and record down their scores.
18. Repeat steps 7-17 until all 20 experimental groups have participated and data on them is collected.

**7.FINDINGS**

Because the method will not actually be carried out, below are details regarding an overall idea of what the data will look like and how that can be interpreted in the context of the hypothesis.

In this study, the T-Test and a Correlation Test will be primarily utilized to process the raw data. The purpose of a t-test is to determine if there is a significant difference between the means of two different groups. In the case of the study, groups will be categorized in the same way the hypotheses were categorized: female v. male students, rural v. urban area, and teacher v. gender bias. A Correlation Test measures the numerical connection and relationship between two different groups. This will determine whether or not one group actually impacts the other.

➤*Female students taught by teachers with a higher gender bias score will ultimately score lower on the test than male students who were taught by the same teacher.*

○T-Test: There will be a greater disparity between the scores of females than the scores of the males taking the same class.

○Correlation Test: There will be a relatively clear correlation between the scores of female students to the degree of gender bias that the teacher exemplifies. However, there will be a weak correlation between the scores of the females with the males because, in this particular study, they are influenced more so by their

mentors than the grades of their peers.

➤ *Teachers in rural areas will have a higher gender bias score than teachers in the urban area. In addition, students in general will score lower in the rural areas than in urban areas.*

○ T-Test: There will be a great difference between the average gender bias score of teachers in urban areas versus the score of teachers in rural areas.

○ Correlation Test: There will be a strong correlation between the area in which the teacher is in versus the gender bias score they receive.

➤ *Teachers will show stronger in-group bias towards students that are the same gender as them.*

○ T-Test: Show similarity between the gender of a teacher versus the gender of the students they choose to interact with [5].

○ Correlation Test: There will be a strong correlation between the gender of the teacher versus the gender they choose to interact with.

## 8. LIMITATIONS

1) Students that aren't interested in the subject of psychology will likely not pay as much attention to the lesson as their peers. As a result, this disinterest and lack of focus could result in a lower test score.

2) Family background is an important factor to consider. Some students might have grown up in a household where they were taught women and men should always be equal, therefore when facing adversity would react less strongly than others. These factors could very well influence the final data.

3) If some teachers see through the cover story of our experiment and the actual purpose behind the study, they might deliberately choose to maintain gender equality [6].

## 9. CONCLUSION

If given more time and resources, the study could develop even further and explore more aspects of intersections between psychology and gender bias, ingroup bias. Because the majority of the time interacting with one specific gender of students is a physical, explicit sign of bias, our study does not take into consideration any forms of implicit bias. In the future, data could be collected and online tests could be required for the teachers to take to measure their implicit gender bias and compare that score to their actual explicit gender bias in the classroom. It would be interesting to examine whether teacher's actually acknowledge that they might be gender biased. If not, then how do we take this information to help reform and improve education systems not only in China, but around the world?

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