International Postgraduate Students Perception of Gender Bias in Universities

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Abstract
This study used 425 postgraduate international students in China, comprising 57.6% of males, 39.7% of females, and 2.8% not reporting their gender. The study targeted a cross-section of students studying for their postgraduate education in China. However, a convenience random sampling technique was used to reach out to the respondents through an online survey using Microsoft form survey platform shared through WhatsApp groups and WeChat groups. These platforms were used due to their flexibility and availability of students based on their online presence. The study found that the relationships between race and perceived prejudice towards gender are also interesting. Black respondents were more likely than non-black respondents to expect females to face gender bias at university regarding discrimination, networking and mentoring opportunities, and socialization. However, when confronted with university gender discrimination, black students reported that they would be less impacted than non-black students by the effects of discrimination on their self-confidence, academic advancement, academic satisfaction, and academic commitment. One reason may be that a greater percentage of black students have already been subjected to other forms of discrimination in their lives, making them aware that discrimination continues to occur in many forms. Moreover, they are causing them to be far more desensitized than non-black students to acts of discrimination. This is just a hypothesis and poses more possibilities for future studies.

Keywords: Gender bias; postgraduate students; International students; China

Introduction
Despite the increasing interest in the issue, gender perceptions have not been adequately studied in university studies so far. It is very important for universities' scientific culture to decide how students' views vary, which influences attitudes (among future professionals) to gender roles and differentiates women's and men's treatment (Pollitzer, 2011). For example, the lack of a consistent understanding of gender inequalities in various scientific disciplines demonstrates why the gender context in the university setting is not adequately incorporated into teaching and research. According to the latest statistics from the European Commission report "She figures 2015" on the degree of progress made towards gender equality in research & innovation in Europe: "The tendency to incorporate the gender perspective into research framework as measured in EU-28 scientific papers varied from virtually zero in engineering and technology, agricultural sciences, and natural sciences to more than 6 percent in current research as measured in EU-28 scientific papers". In comparison, engineering and technology had one of the lowest proportions of gender-based publications (0.1% in 2010-2013), but the fastest growth rate between 2002 and 2013 (14%) (EC, 2016).

Furthermore, gender perceptions and the study process are closely linked to engagement, "which regulates the organization of women and men within and across multiple disciplines" (Pollitzer, 2011). On a European basis, the Athena phenomenon can be observed clearly (Hewlett et al., 2008; Townley, 2010; Dawson, 2014). "Where gender differences are marked in terms of the most interesting topics and training and development programs" (EC, 2015). Globally, 53 percent of bachelor's and master's graduates are women. Parity declines at the Ph.D. level (43% females vs. 57% males) and far more at the postgraduate level, where only 28% of faculty positions are held by women (UNESCO, 2015). This gender disparity is more evident at the senior level, with a lower proportion of women in leadership roles and, subsequently, decision-making and policymaking. For instance, "men are more than twice as likely to choose engineering, manufacturing, and construction as women, while women are twice as likely to pursue a degree in education." The proportion of women in the student body decreases from 35.57 percent at university entrance to 34.00 percent at bachelor's degree level; it rises to approximately 36 percent at master's level and decreases to 32.69 percent of women are Ph.D. graduates (CESAER, 2015). In 2010, on average, 46 percent of all Ph.D. graduates were women in graduate and postgraduate studies (EC, 2012). However, in research, mathematics, and computing, women make up 40 percent of Ph.D. graduates, and their share drops to 26 percent in engineering, manufacturing, and construction. In 2012, women accounted for 28 percent of engineering,
manufacturing, and construction Ph.D. graduates, and just 21 percent of computer graduates, illustrating the current shortage of women in the science and technology sectors (EC, 2016). Gender inequalities in schooling, learning, and skills development are significant in higher education and accessibility to leadership positions: women and men are not represented equally at the doctoral level, as scholars, or as academic decision-makers (Melo-Martín 2013; Ashcraft and Breitzman 2006). According to UNESCO (2018), "only 18% of full professors are female, and only 13% of higher education institutions are female in 27 EU countries." As a result, women do not receive the same amount of money as men, do not obtain equal research funds, and do not have the author's appropriate position in scientific publications or patent applications as men (EC 2016). Perceptions of gender can affect women's ascent to senior positions (van den Brink & Benschop, 2012). Women are considered to be worse science leaders (Smyth & Nosek, 2015; Carli et al., 2016) and are stigmatized as not having the inherent ability needed in certain fields (Cimpian et al., 2015). This and many other gender stereotypes can describe why when weighed on the quality of their study, women receive comparable levels of research funding, but less financial support, when measured on the competence of a researcher (Witteman et al., 2019), are somewhat occasionally invited to conferences (Casadevall & Handelsman, 2014; Klein et al., 2017), are less likely to be chosen for science awards (Popejoy et al., 2014; Lincoln et al., 2011) are less included on editorial boards (Cho et al., 2014) are less likely to be chosen for scientific awards (Popejoy et al., 2014; Lincoln et al., 2011).

In 2015, Handley et al. stated that men do not consider the role of gender bias in research to the same degree as women: when men and women were asked to read an abstract from a research study reporting gender bias, men appeared to judge this study less favorably, reflecting men's inability to recognize gender bias. Among academics who work in science, technology, engineering, and mathematics (STEM) (Handley et al., 2015), the gender gap was more prominent. Also, many women's undergraduate discipline choices rely on the possible discrimination expected in each field (Ganley et al., 2018). A lack of awareness of these problems, particularly at the senior level, is likely to result in fewer steps to resolve them being implemented in place. Therefore, it is crucial to understand how individuals understand gender biases in their workplace and, critically, whether these expectations are affected by gender, seniority, study area, and type of institution. This present study intends to critically assess the perception of postgraduate students of gender bias in universities to understand the phenomenon of these tenets.

Materials and Method

Participants and data collection

The study's participants were 425 postgraduate international students in China, comprising of 57.6% of males, 39.7% of females, and 2.8% not reporting their gender. The study targeted a cross-section of students studying for their postgraduate education in China. However, a convenience random sampling technique was used to reach out to the respondents through an online survey using Microsoft form survey platform shared through WhatsApp groups and WeChat groups, respectively. These platforms were used due to their flexibility and availability of students based on their online presence. More importantly, the confidentiality and anonymity of respondents were assured in the course of the data collection. Ultimately, the response rate was 100% as all respondents responded to questionnaires shared through the online platforms.

Variables measurement

Gender bias

Respondents were asked to indicate whether their gender could affect their emotions and psychology, socialization and networking, mentoring, anger, and sympathy using a five-point Likert scale where 5 is equal to likely, and 1 is equal to never. The items used to measure gender bias were adapted from previous studies that examined gender bias impact on students based on their perception (Geddes et al., 2012; Sipe et al., 2009; Bible & Hill, 2007; Carr et al., 2003; Ngo et al., 2003). Moreover, respondents were further asked to indicate whether gender bias could affect the gender of other students. The items' reliability and validity measured Cronbach alpha of 0.87 for gender bias and 0.82 for other students' gender bias. Also, the composite reliability was 0.85 and 0.83, respectively. The results of the validity and reliability of the items
The academic impact of gender bias

To measure the impact that gender bias could have on international postgraduate students' academic success, questions were asked regarding that. The items representing the questions were; confidence level, academic commitment, academic satisfaction, and academic advancement. These items were adapted from Geddes et al. (2012). However, all the items loaded validly and reliably with a Cronbach Alpha coefficient of 0.78 and a composite reliability coefficient of 0.81.

Demographic information

The study included eight demographic questions based on the following: age, gender, major, GPA, years spent, duration of their courses, university, and political viewpoint. Conversely, race, and gender were the only variables that proved statistical significance among the responses. Therefore, other variables were not reported in the analysis.

Data analytical technique

The data analysis was done using SPSS statistical analysis software. Specifically, descriptive statistics such as mean, frequencies, standard deviation, and correlations. Moreover, an independent t-test was performed to examine the impact of gender bias on gender and race. Furthermore, the total scores were not relied on, but the average scores of all responses were calculated to avoid misleading information due to some missing data. Lastly, cross-tabulation was performed using gender and race as dependent variables against gender bias measures.

Results and discussion

The respondents' mean age can be reported as 27 years with a standard deviation of 2.56 years; the ages range between 24 and 45. The average GPA of the respondents was 3.02 (standard deviation = 0.21) of 4.00. The majority of the respondents have spent 2 to 4 years in the respective universities representing 68% of the respondents. The average duration of the course of the respondents was 3 years. About 80.5% of the respondents were in the humanities as their course of study, while 12.5 were in the natural sciences, and the remaining 7% pursue other courses. 76% of the respondents responded that they are black in the race, while 24% respondent otherwise. In light of their political viewpoint, 56% reported as conservative, 40% respondent as liberal, and 4% responded as other than the two.

To ascertain the significance of gender bias based on students' perception regarding their gender and race, the mean responses of all the variables were calculated based on factor groupings of gender bias on respondents, gender bias on other students, and the possible impact of gender bias on respondents' academic success. Specifically, the independent sample t-tests were conducted to ascertain whether there is a significant effect of the male and female gender and black and non-black race on the perception of gender bias in each factor grouping. Evidence in table 1 suggests that female students are likely to experience gender bias as opposed to male students, reported 425 respondents, t-statistics (-14.25), and p-value <0.00. Gender bias experience of other students can be reported as 325 respondents, t-statistics (-2.32), and p-value <0.01. Most importantly, evidence in table 2 regarding gender bias's impact on students' academic success inversely relates to female students (N=423, t-statistics= -1.23, p-value<0.00). Regarding the respondents' race, the findings suggest that black race students are negatively affected, unlike students with the non-black race (N=325, t-statistics = -1.24, p-value <0.01). Similarly, other students who face gender bias victimization are mostly students of black race (N=412, t-statistics = -3.25, p-value <0.00). Students of the black race are negatively affected by gender bias regarding their academic success as compared to students of the non-black race (N=421, t-statistics = -2.32, p-value <0.01).
students. Nonetheless, 67.8% of students responded that they do not foresee that they would encounter gender bias in their universities. Moreover, more than 80% of the students responded that they do not expect gender bias to affect their emotions, psychology, and anger/sympathy towards their colleagues and teachers. Also, 87.2% do not expect their gender to affect their mentoring, networking, and socialization in their universities.

Students were further asked to respond to whether a female's gender could impact their academic life; most of the respondents (students) claimed that it is not likely to result negatively. Closely 59% of the students claimed that females are not likely to encounter gender obstacles or gender-specific biases in their universities. Nearly 89% of the students claimed that females would not have any obstacle to socialization, mentoring, and networking due to their gender, and 84% claimed that their emotional and psychological intents would not interfere with their academic success due to their gender. Furthermore, 74% of the students understand that females would not face any anger/sympathy towards their teachers and colleagues because of their gender.

Important information shared in table 2 depicts the gender and race analysis of the cross-tabulation based on students' perception of gender bias in their universities. From their responses, differences in perceptions of gender bias manifested. The responses were cross-tabulated on their perception of gender bias based on their gender and race in relation to their self-impact and impact on other students. Both male and female students tend to see opportunities for mentoring, socialization, and networking as areas that gender would not affect; however, some negative correlation exists between the female gender and the impact on mentoring. Also, a negative correlation exists between the female gender and sympathy towards teachers. That notwithstanding, when students' responses regarding the same outcome are taken into consideration, it is more likely that female students would have a negative correlation between their gender and their academic success than male students. For instance, about 49% of other female students expected females to be prone to gender bias in universities.

In contrast, about one-third of male students expected this result for other females. Even though male and female students claimed similar feedback to questions concerning females' opportunity to socialize and network in the universities, 41% of female students against 30% of male students reported that females are more likely to have an emotional and psychological impact. With respect to mentoring, students responded that other female students are more likely to experience gender bias (29% vs. 16%). The responses suggest that female students are more likely to impact their anger and sympathy towards their colleagues and more than male students.

In view of the students' race, black students compared to non-black students are perceived to be more likely to experience gender bias based on their socialization and networking pursuit (7% vs. 3%). Students suggest that non-blacks are prone to that more than black students (16% vrs 8%) in light of emotional and psychological issues. The students' responses suggest that other black students are more likely to experience
gender bias or obstacles, whereas 56% of blacks against 45% of non-blacks. More than half of black students understand that other students are likely to experience gender bias in their universities. Comparatively, about 33% of black students understand that other students would experience emotional and psychological issues regarding gender bias against 24% of non-blacks who also affirms that. Also, black students (15%) are more likely to believe that sympathy for other students toward teachers would be affected by victims of gender bias as against non-black students' beliefs (10%). (See table for more details).

Table 2 Cross-tabulation results of self-impact and perception of other students impact

<table>
<thead>
<tr>
<th>No Self impact</th>
<th>Gender</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>obstacles encountered or gender bias</td>
<td>Male (%)</td>
<td>Black (%)</td>
</tr>
<tr>
<td></td>
<td>79</td>
<td>75</td>
</tr>
<tr>
<td>Emotional and psychological impact</td>
<td>89</td>
<td>92</td>
</tr>
<tr>
<td>Sympathy towards other students</td>
<td>93</td>
<td>85</td>
</tr>
<tr>
<td>Sympathy towards teachers</td>
<td>97</td>
<td>93</td>
</tr>
<tr>
<td>Anger towards teachers</td>
<td>98</td>
<td>94</td>
</tr>
<tr>
<td>Anger towards students</td>
<td>97</td>
<td>95</td>
</tr>
<tr>
<td>impact of socialization and networking impact</td>
<td>97</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No impact on other students</td>
<td>Gender</td>
<td>Race</td>
</tr>
<tr>
<td>obstacles encountered or gender bias</td>
<td>64</td>
<td>44</td>
</tr>
<tr>
<td>Emotional and psychological impact</td>
<td>70</td>
<td>66</td>
</tr>
<tr>
<td>Sympathy towards other students</td>
<td>89</td>
<td>78</td>
</tr>
<tr>
<td>Sympathy towards teachers</td>
<td>91</td>
<td>85</td>
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<tr>
<td>Anger towards teachers</td>
<td>84</td>
<td>74</td>
</tr>
<tr>
<td>Anger towards students</td>
<td>80</td>
<td>66</td>
</tr>
<tr>
<td>impact of socialization and networking impact</td>
<td>81</td>
<td>71</td>
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</table>

Table 3 exhibits the outcome from the cross-tabulation of students’ perception of gender bias on their academic success based on their gender and race characteristics. Hypothetically, students were asked to respond to their experience of gender bias in their respective universities. However, the impact of gender bias on their confidence level, academic achievements, academic satisfaction, and academic commitment was investigated. The outcome suggests that female students are more likely to experience gender biases or obstacles in their universities than male students. Regarding students' race, black students are more likely to experience gender bias or obstacles than non-black students. Specifically, female students are more likely to impact their confidence more than male students (35% vs. 22%). Also, female students are more likely to impact their academic commitment than male students (22% vs. 11%). Again, female students are more likely to impact their academic satisfaction more than male students (35% vs. 22%). To understand whether gender bias would affect students' perception of their academic advancement, the outcome suggests that female students are more likely to impact their academic advancement more than male students (19% vs. 11%). Based on their race, the findings suggest that black students are more likely to impact their academic success than non-black students. Specifically, 19% of black students are likely to impact gender bias on their confidence level against 11% of non-black students. Also, 22% of black students are more likely to experience academic advancement than 14% of non-black students. Moreover, 35% and 22% of black students are more likely to impact their academic satisfaction and commitment than 14% and 11% of non-black students, respectively.

Table 3 Cross-tabulation of perception on gender bias and it impact on academic success

<table>
<thead>
<tr>
<th>Cross-Tabulation of students' perceived academic impact of gender bias</th>
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<tbody>
<tr>
<td>Gender</td>
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<tr>
<td></td>
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<tr>
<td>Confidence level</td>
</tr>
<tr>
<td>Academic advancement</td>
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<tr>
<td>Academic satisfaction</td>
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<td>Academic commitment</td>
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Conclusion
This present study's findings are somewhat astonishing, despite the consistency with other previous studies. The study found that students' perception of gender bias in the university aligns with current studies. Investigation proves that gender bias exists in some universities in these present times regarding socialization and networking, mentoring, and academic success. Although the expectation was to find students underestimating the possible impact of gender bias on their academic success, the responses are contrary to the more skewed expectations. Almost 89% of the students claimed that their gender would not impact socialization and networking, mentoring, emotions, and psychology. Similarly, 89% of the students responded that other female students are perceived to not impact their networking, socialization, mentoring, and emotions and psychology in their universities. Moreover, 74% of the respondents believe that females are prone to anger towards their teachers and colleagues due to gender bias, and 59% believe that gender does not influence the perception of gender bias in the university.

Based on previous studies, the study thought that female student would be more likely than male students to predict the potential effect of gender bias on themselves. Female students would be more likely than male students to perceive possible gender inequality at university. Student responses also backed these assumptions and prior study results. In addition, the literature led us to conclude that while female students were more likely to anticipate possible gender inequality in university than male students, female students were less likely to anticipate gender bias against themselves than they were to foresee gender discrimination against other females.

The current results are consistent with the findings of Schmitt et al. (2002) and many others that members of a disadvantaged group may be unwilling to consider prejudice against themselves (Pla-Julián & Díez, 2019; Crosby et al., 1989). While social psychology theories can explain this phenomenon, these findings suggest that present-day female college students may be more likely than male students to believe in a meritocracy structure's infallibility. The implications of potential negative gender stereotypes outweigh the information, skills, and abilities. This subject merits more study.

The study found that the relationships between race and perceived prejudice towards gender are also interesting. Black respondents were more likely than non-black respondents to expect that females would face gender bias at university regarding discrimination, networking and mentoring opportunities, and socialization. However, when confronted with university gender discrimination, black students reported that they would be less impacted than non-black students by the effects of discrimination on their self-confidence, academic advancement, academic satisfaction, and academic commitment. One reason may be that in their lives, a greater percentage of black students have already been subjected to other forms of discrimination, making them aware that discrimination continues to occur in many forms, and at the same time, causing them to be far more desensitized than non-black students to acts of discrimination. This is just a hypothesis and poses more possibilities for future studies.

The present study results showed that college students underestimate the potential presence of gender discrimination in the workplace, especially against women, and influence it. This is consistent with the studies of Garcia-Gonzalez et al. (2019), Sipe et al. (2009), Carr et al. (2000), and Carr et al. (2003), which indicated that female students perceive themselves to have been unprepared for the forms of gender discrimination they faced in their academic lives through their early experiences and educational opportunities. The effects of this lack of preparedness are potentially relevant. Educational authorities must understand and prepare for the continued presence of gender-based discrimination in current universities, or they can lose real opportunities to counter gender-based discrimination through preparation, compliance, and deliberate planning of human resources.

References


