Exploring access, barriers and gender equality in STEM education at a Bangladeshi University

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Overview

Background to the project
Main issues
Our approach
Our preliminary key findings so far
Preliminary conclusion, future and implications
Questions
**Background**

- Men still outnumbering women in accessing higher education in most low-income countries (Mott, 2022) including Bangladesh (BANBEIS, 2021) and women/feminine subordinated (Rosa & Clavero, 2022).
- This inequality directly related to the UN’s SDG5 Gender equality, SDG4 Quality education and SDG10 Reduced inequalities.
- Women’s participation in STEM education in Bangladesh one of the lowest in South Asia (Ahmed, Urmı, & Tasmin, 2020) and yet little research conducted.
- Gender inequality = Social justice issue.
Research site: University of Rajshahi, Bangladesh
Main issues

• Women’s significantly low participation in STEM education globally – 35% (UNESCO, 2017).
• Little systematic research on gender equality in STEM education in Bangladesh.
• Lack of clear gender equality policies in higher education in the country.
• Enrolment of female students significantly low at Rajshahi University (research site) - 24,309 male vs 13,982 female in 2020 (UGC, 2021).
Research questions

• What are the existing policies on gender equality in higher education?

• What are gender equality issues (access and barriers to STEM education) as experienced by existing Rajshahi University undergraduates and postgraduates?
Our approach

- Designing a collaborative partnership project funded by the British Council (Going Global Partnership Grant).
- Making gender equality issues key to research partnership.
- Research Ethics approval at The Open University.
- Research instruments: existing document analysis (if any) & online survey (adapted from UNESCO, 2018; Verdugo-Castro et al., 2022) with existing STEM students (N= 206; 104 females & 102 males).
Preliminary key findings (1)

Document analysis – keyword search

• National Women Development Policy 2011* – emphasis on women’s empowerment.

• 21.1 To increase education of women, to eliminate discrimination in education rate and opportunities between man and woman and to follow the Education Policy 2010 aimed at mainstreaming women in the development. (p. 16)


• No policy on gender equality in higher education or STEM education.

Preliminary key findings (2)

STEM student survey – experience

• Total respondents – 206 STEM students; 104 females & 102 males from rural, semi-urban and urban equally (33%).
• Gender discrimination in assessment and evaluation of achievement – 17%.
• Dismissed wrongly due to gender – 12%.
• Gender-based offensive comments at school/university – 12%.
• Unwanted sexual comments – 21%.
• Treatment of female and male students consistently to sometimes inequitably on programme – 40%.
• Harassment at school (64%) and during undergraduate study (36%).
STEM student survey – gender perceptions

Gender perceptions 1

PER.1 Women and men have equal employment opportunities in ICT.
PER.3 Men and women have different but equally useful ways of...
PER.11 Women should not act like men in the workplace.
PER.12 In my childhood home, I was taught that men should act like men...
PER.13 In the past, I have teased or bullied someone who dressed or acted...
PER.14 University studies are more important for men than for women.
PER.15 Women must sacrifice their careers to support their children/family.
PER.16 Women have the same technical skills as men.
PER.18 Women are capable of developing useful software.
PER.19 Women and men have equal employment opportunities in ICT...
PER.1 All humans are fundamentally the same, regardless of their gender.

Strongly disagree | Disagree | Agree | Strongly agree

0 50 100 150 200 250

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### Preliminary key findings (4)

#### STEM student survey – gender perceptions – 2

**Gender perceptions 2**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>PER.20 The well-being of the family is more important than the rewards of work.</td>
<td>34</td>
<td>54</td>
<td>120</td>
<td>40</td>
</tr>
<tr>
<td>PER.27 There are more boys than girls in STEM studies as they are more freaks.</td>
<td>3</td>
<td>71</td>
<td>102</td>
<td>15</td>
</tr>
<tr>
<td>PER.34 Most girls are better at other things (such as letters/languages) and choose studies in which they are better.</td>
<td>1</td>
<td>71</td>
<td>102</td>
<td>15</td>
</tr>
<tr>
<td>PER.35 Science is helpful in my everyday life.</td>
<td>18</td>
<td>97</td>
<td>90</td>
<td>6</td>
</tr>
<tr>
<td>PER.36 Learning science has made me more critical in general.</td>
<td>17</td>
<td>91</td>
<td>86</td>
<td>6</td>
</tr>
<tr>
<td>PER.37 Science and technologies will provide greater opportunities for future generations.</td>
<td>6</td>
<td>68</td>
<td>125</td>
<td>2</td>
</tr>
<tr>
<td>PER.24 Boys prefer STEM-related hobbies.</td>
<td>6</td>
<td>68</td>
<td>89</td>
<td>27</td>
</tr>
<tr>
<td>PER.26 University studies in STEM are generally more attractive to boys.</td>
<td>6</td>
<td>60</td>
<td>97</td>
<td>30</td>
</tr>
<tr>
<td>PER.23 At home, boys do more practical activities with their parents than girls (e.g. cars, tools, computers, etc.)</td>
<td>6</td>
<td>54</td>
<td>114</td>
<td>21</td>
</tr>
<tr>
<td>Most girls are better at other things (such as letters/languages) and choose studies in which they are better.</td>
<td>6</td>
<td>54</td>
<td>114</td>
<td>21</td>
</tr>
</tbody>
</table>

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Preliminary conclusions, future and implications

- Need for a clear gender equality policy for higher education & STEM in particular.
- Experiences of gender-based discrimination in school and university by participants highlighting social justice issue.
- Participant perceptions positive towards STEM-related abilities of men and women although ‘male better in science than female’ views prevalent.
- More social justice oriented research-based evidence required – next phase - in-depth interviews and focus groups.
- Pertinent to address perpetual sociocultural biases against women and inequitable access to enabling resources (academic capital).
Any questions?
Thank you
References


UNESCO. (2017). *Cracking the code: girls’ and women’s education in science, technology, engineering and mathematics (STEM)*. Paris: UNESCO.

