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Transitional Troubles: Gendered Dynamics of Postgraduate Students With STEM Backgrounds Entering into Elite Institutions, and Moving into a Precarious Employment Landscape in India and the UK

Srabani Maitra[1], Saikat Maitra[2], Barbara Read[1], Manish Thakur[2]

[1]University of Glasgow, Glasgow, United Kingdom [2]Indian Institute of Management Calcutta, Kolkata, India

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Abstract:

In this paper we will be exploring two particular, gendered, 'transitional troubles': postgraduate students from STEM backgrounds entering into elite institutions, and the transition to skilled employment in STEM sectors in times of precarity. Although these topics have an established research literature, the links between them are under-researched, particularly in the Indian context. We will be drawing on in-depth online interviews with over 30 postgraduate students in India and the UK as part of the *Gendered Journeys* project, analysed utilising a mix of thematic and Foucauldian Discourse Analysis. We will be focusing on participants' experience of accessing their institution; perceptions of the security of the academic labour market in STEM fields; their perceptions as to whether gender 'matters' in securing a position, and their own plans for the future in the current post-Covid climate.

Paper:

In this paper we will be exploring two particular, gendered, 'transitional troubles': postgraduate students from STEM backgrounds entering into elite institutions, and the transition to skilled employment in STEM sectors in times of precarity, focusing on India with some additional comparative data from the UK.

Gender parity statistics on access do not capture the fluidity of gender, and equity goals cannot stop at point of entry but need to encompass quality of experience once at university. Nevertheless, such figures are important as background context. Since the 1950s, the Government of India has made various policy commitments to combating gender disparity in STEM employment and education. For example, the Science, Technology and Innovation Policy (Government of India, 2020) has made gender parity a goal by setting up flexible schemes that aim to facilitate women's careers in STEM

fields. In recent years the country has not only seen an increase in the participation of women in higher education (eg. in 2018-2019, 48.6% of students enrolled at HEIs were women) (MHRD, 2019), but in STEM fields as well, with women constituting nearly 43 percent of the total STEM enrolments in the country (AISHE, 2019).

Additionally, due to the expansion of higher education institutions in India, engineering and technology fields have seen tremendous changes with greater participation of women students in both medical and engineering fields such as computer engineering, information technology, and electronics engineering(Amritham and Kumar, 2021).

The move towards equity, however, has seen the emergence of new hierarches within higher education institutions (Sahni & Kaylar, 2012). While numbers matter, they might also reveal only partial truths; questions need to be asked about the 'topography' or details of women's access, in terms of region, subject, institution type and even individual institutions (Gupta, 2012; Sahni & Kaylar, 2012). While generally in STEM subjects, there are more male than female students, substantial differences start appearing in the context of the most elite academic institutions. The AISHE shows that men outnumber women as students at the more prestigious HEIs in India, particularly Institutes of National Importance such as the Indian Institute of Technology (IITs). For example, 78% of students at undergraduate level in Institutes of National Importance are registered as male.

In the UK, differential access to prestigious institutions overall primarily reflects inequalities relating to socio-economic background and 'race'/ethnicity (Ball, 2012; Boliver, 2015, 2016). Recent work by Ro et al., 2018) found that students studying STEM subjects in England were disproportionately white, male and middle-class. When looking specifically at those who study STEM subjects in more 'prestigious' backgrounds, disparities relating to socio-economic background become more marked, as does gender – but the opposite is the case in relation to those from Black and Minority Ethnic groups (Ro et al., 2018).

It is therefore, critical to go beyond macro level policy analysis to look at granular trends at various institutional levels to understand how gender identities – intersecting complexly with other aspects of identity and positioning - determine women's access to STEM education particularly at the prestigious institutional levels (Amritham and Kumar, 2021).

We are also keen to follow students' journeys after they have finished their studies – particularly exploring the transition to, and experience of, the world of work. In India, like the UK, the casualisation of the academic workforce has intensified (Pushkar, 2021). Nevertheless, the connection between the call for gender diversity in STEM fields and the precarity of the

academic/scientific labour force is under-researched - a surprising gap as evidence shows that women and BME academics are disproportionately represented in the most insecure academic positions across HE, a key employment sector for skilled STEM workers (see e.g. ECU, 2016).

Against this complex backdrop, we draw in this paper on 30 in-depth, semi-structured interviews with women from STEM backgrounds in 'elite' HE institutions in India and the UK. to understand their perceptions and experience of their STEM journeys. Using a mix of thematic analysis and Foucauldian Discourse Analysis, we will be focusing on students' perceptions of how gender impacts their entry into STEM fields, especially in institutions socially regarded as 'elite'. We will explore such intersectional factors and dynamics as socio economic and regional backgrounds, family structures, resource allocation, institutional cultures and normative gender roles to provide an in-depth micro analysis of interventions necessary to make elite higher educational institutions in STEM areas more inclusive and equitable – and to consider the impact of the trend towards casualisation on gender equity in employment in and beyond STEM disciplines.

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