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Gender and Higher Education in AcSIR

Sandhya Wakdikar* and Praveen Sharma**

As recognized in National Education Policy –2020 (NEP—2020), the scheme of an across-the-board and multidisciplinary education would upkeep enhanced and enriched research. Gender parity is wide-ranging across research subfields at various levels. It is important to explore the reasons behind the reluctance of girls in choosing STEM. The present work is based on an in-house survey of CSIR labs; including gender-wise data related to student enrolment and performance in AcSIR during 2011-2020. The focus of AcSIR has been on conveying research opportunities in research fields not normally taught in academic universities. For AcSIR institutes included in this survey, it is remarkable that a noteworthy share of female students has been selected for various AcSIR programmes, which marks the distinguished achievement of CSIR in encouraging more women towards STEM.

It has been acknowledged that an approach to a better all-inclusive and multidisciplinary education will support enhanced and enriched research. The National Education Policy (NEP) 2020 (Ministry of Human Resource Development, 2020) aims to achieve a Gross Enrolment Ratio of 50% by the year 2035 from its existing level of 27%. It has stressed plummeting dropout rates and warranting universal access to education at all levels. The growth of the higher education sector in India has facilitated adaptations in the attitudes of families, particularly toward the education of women in Science, Technology, Engineering, and Mathematics (STEM). Still, gender parity persists in STEM across all disciplines at almost every level of education. The government, through the NEP, plans to constitute a 'Gender-Inclusion Fund' to build the nation's capacity to provide equitable quality education for all girls. Higher and Technical education of women in India plays a significant role in refining the growth and prosperity of the nation and is reiterated by Parmar and Modi (2016).

By affirmative action of introducing a supernumerary quota for girls, the Ministry of Education targets to increase the enrolment of girls which was 8% and 14% respectively in IITs and NITs in 2016-17 to 20% in 2020-21 as stated by Geethalakshmi et. al (2021). The authors state that gender disparity in engineering enrolment is quite substantial in India. Amirtham and Kumar (2021) discuss the issue of Gender disparity in STEM in higher education and argue that it is a matter of concern globally. They state that there is gender parity

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Gender and Area as Determinants of Mathematics Anxiety among Elementary School Students

Shagun* and Vishal Sood**

Mathematics Anxiety is considered as determining factor of Mathematics and the research literature proclaims that it is determined by various factors present in the child's immediate environment. Gender stereotypes, myths about Mathematics, and spatial concerns have given an impetus to this aspect. The present study is an effort in this context that tries to uncover the role of gender and location of the school in determining Mathematics Anxiety among elementary school students. The study is empirical in nature based on primary data collected through a survey and emphasizes on Mathematics Anxiety as a trait of anxiety. The data have been analyzed statistically and findings have been drawn out with clear-cut implications for the teachers and parents to reduce Mathematics Anxiety among elementary school students.

The world is currently witnessing fast and rapid changes in the knowledge landscape with various dramatic, scientific, and technological advances viz. machine learning, artificial intelligence, etc. Such advances have also impacted the education sector and it has become importantly critical that the present-day children in schools do not learn but more importantly learn 'How to learn?' To cope-up with the continuously rising demands of the industry and the advances taking place therein, it is increasingly felt that there must be a larger emphasis on the development of critical thinking, logical reasoning, problem-solving ability, analytical thinking, etc. among the younger generation. In order to develop such competencies among children, Mathematics plays a significant role and the pedagogy of Mathematics should be such it makes Mathematics learning among students more joyful, experiential, inquiry-driven, discovery-oriented, and problem

solving-based. However, the current scenario of teaching-learning Mathematics at the school level is not so appreciating and encouraging on account of personal, institutional, and environmental factors. The learning outcomes in Mathematics at the school level are not up to the mark which is evident from different surveys conducted at state, national and international levels (ASER, 2012 and OECD, 2013). The low level of Mathematics learning outcomes may be attributed to lower competence in Mathematics and the use of inappropriate teaching-learning strategies by the teachers during classroom transactions. On account of such reasons, Mathematics is considered a dull and dreadful subject by students which creates anxiety among them towards studying Mathematics. Mathematics Anxiety is detrimental in nature to achieve higher outcomes in Mathematics as has been revealed in many of the previous research. A brief account of such previous research is presented here.

It was revealed by Dane (2005) that there were no gender-related differences in Mathematics Anxiety. On the other hand, the findings of Osborne (2001); Dowker et al. (2012); Yuksel (2008); Ameen, Baig, and Khaliq (2016), and Srivastava (2019) showed that females possessed higher Mathematics Anxiety as compared to the boys. Apart from the impact of gender on maths anxiety among students, Abbasi, Samadzadeh and Shahbazzadegan (2013) revealed a significant relationship between students' Mathematics Anxiety and teachers' personality characteristics. Researchers in the past have identified other factors influencing maths anxiety among students. Srivastava (2019) showed that personal and institutional factors like gender, attitude, parental education, Mathematics achievement, and school type need no longer be neglected in research efforts directed toward studying Mathematics Anxiety. In the context of studies on characteristics of mathematics-anxious students, Ashcraft (2002) pointed out that highly mathematics-anxious individuals are characterized by a strong tendency to avoid Mathematics which ultimately undercuts their Maths competence and forecloses their important career paths. Math anxiety disrupts cognitive processing by

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