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The good, the bad, and the ugly of implicit bias

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The concept of implicit bias, also termed unconscious bias, and the related Implicit Association Test (IAT) rests on the belief that people act on the basis of internalised schemas of which they are unaware and thus can, and often do, engage in discriminatory behaviours without conscious intent.¹ This idea increasingly features in public discourse and scholarly inquiry with regard to discrimination,¹ providing a foundation through which to explore the why, how, and what now of gender inequity. Attention to the gender gap in academia, particularly pronounced in the science, technology, engineering, mathematics, and medicine (STEMM) fields,² has led many institutions to mandate implicit bias training.¹³ Here we critically explore the impact of such interventions, illuminating the good, the bad, and

the ugly of implicit bias and the implications for women in science. Although it is essential to promote awareness of gender inequities, the current focus on implicit bias risks masking broader social, structural, and political barriers to women's advancement.

Scholarship in implicit bias has helped to unveil a troubling gender bias in academia, whereby men's competencies, skills, productivity, leadership potential, and quality of work are consistently judged to be superior on the basis of gender identification alone.¹⁴ Implicit bias training can make individuals aware of their unintentional involvement in the perpetuation of discrimination and inequity as well as the unrecognised advantages they enjoy based on group membership. Such training encourages individuals to confront their own biases and unearned privileges and to learn strategies aimed at reducing discriminatory thoughts and practices.⁵ Additionally, as the concept of implicit bias has gained popularity, it has enriched public consciousness and discourse on gender inequity.⁵ These are all important building blocks for creating change and thus represent inherent goods of the implicit bias trend.

Implicit bias training has had some success in changing individual-level beliefs and actions,⁴ but meta-analyses suggest it is largely ineffective in diminishing institutional inequities.⁶ For instance, women remain disproportionately less likely to receive faculty appointments, obtain leadership positions, earn comparable wages, receive grant funding, and are more likely to leave the academy prematurely.^{1,3,7,8} A focus on implicit bias partly contributes to this lack of change by emphasising agency (eg, individual choice) over structure (eg, institutional, organisational, and



political systems), ignoring the latter's role in framing not only the beliefs and actions of individuals but also the rules, regulations, laws, and culture that govern social institutions.⁹ For instance, academia is entrenched in a masculinised model of success with its meritocratic principles that imbue institutional practices and privilege the stereotypical traits, career styles, work practices, and preferences of men (eg, competitive, hierarchical), overlooking the ways that these can conflict with some women's lives and work-related preferences (eg, collaborative, egalitarian).⁷⁻¹⁰ Furthermore, when women excel in this masculinised environment, they are often criticised because such behaviours clash with conventional social expectations of feminine comportment.^{4,7} This double bind has been an impediment to women's advancement in research settings,⁸ one that implicit bias training alone cannot resolve. Research also suggests such training can actually reinforce, magnify, or normalise biases if educational messaging is overly prescriptive.¹¹

Beyond these good and bad features, implicit bias also contains an ugliness. By focusing on individuals as the primary site for solutions, implicit bias depoliticises gender inequity, shifting focus away from the historical, social, structural, and political contexts in which those inequities are produced and maintained. For example, a limited focus on individuals engaged in paid work overlooks the inequitable division of unpaid domestic and care work that women do in the home and community and the resultant conflicts that can arise for women in the employment sphere.¹² Furthermore, gender inequity cannot be separated from the wider context of class, race, ethnicity, geographical location, immigration status, sexuality, and countless intersections thereof.¹² And yet, the intersecting nature of oppression is often overlooked in implicit bias scholarship in which the marginalisation of women is often projected as a universal experience, ignoring these other sources of inequity. Moreover, the binary approach of man/woman excludes non-binary persons from the conversation. Lastly, by focusing on the subconscious and unintentional nature of gender bias, implicit bias can overshadow explicit and intentional forms of bias that persist in academic institutions.²

A focus on implicit bias ultimately obscures the many interconnecting layers of gender inequity and hampers opportunities for meaningful and lasting change. Such change will require a suite of comprehensive interventions

designed to improve pay equity,¹³ facilitate more equitable and transparent hiring and promotion practices,¹³ expand mentorship opportunities for women,⁸ and inform changes to parental leave legislation,¹⁴ child-care policies,¹⁴ and flexible work arrangements.¹⁵ Such actions have been successfully implemented in academic institutions internationally with evidence to support their benefit for women. For example, multiple institutions have implemented flexible work policies designed to support employees with family responsibilities, resulting in reduced work-life conflict.¹⁵ Organisations might also support participatory initiatives, leveraging the knowledge and experiences of a diverse and representative group of employees, particularly women, in the development and evaluation of institutional interventions and initiatives. For instance, Grada and colleagues⁸ showed that involving women academics in the development and redesign of organisational policies and programmes helped to challenge the individualistic and masculinised meritocracy of the institution, promoting more inclusive measures of success.⁸ Tackling the entrenched sources of gender inequity within STEMM is an important step on the journey towards addressing the challenges to women's advancement. However, we must also question the culture, policies, and practices of the broader structures in which academic institutions are situated. Opening opportunities to discuss and dismantle implicit gendered assumptions, such as the naturalisation of women's caregiving, is essential to promoting gender equity at the societal level, which will ultimately foster improved equity within academic institutions.

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Driving gender equity in African scientific institutions

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Women scientists have a vital part to play in scientific leadership and in contributing to Africa's development and transformation, but they remain substantially under-represented in higher education and in science, technology, engineering, and mathematics (STEM).

Women account for 53% of the world's bachelor's and master's degree graduates and 43% of PhD graduates, but only 28% of researchers in all fields.¹ Only 30% of women in higher education move into STEM-related fields.² Similarly, in sub-Saharan Africa, only 30% of researchers in all subject areas are women.³ For example, in Cameroon, enrolment in tertiary education was estimated at 20% for men and 15% for women in 2017,^{3,4} and women constituted only 22% of Cameroonian researchers and only 7% of academics at the rank of

full professor.⁵ Between 2011 and 2013, there was an increase in the percentage of women researchers in South Africa (43.7%), Egypt (42.8%), Morocco (30.2%), Senegal (24.9%), Nigeria (23.3%), Rwanda (21.8%), Cameroon (21.8%), and Ethiopia (13.3%).^{6,7} However, there is an attrition in the number of women along the career trajectory in scientific research.¹ Gender disparities persist in the scientific workforce, generally concentrating female scientists in the lower echelons of responsibility and decision making with limited leadership opportunities.⁷ This situation limits the diverse perspectives that ensure robust scientific agendas and allow women's contributions and advancement.

A gender lens is therefore necessary for recognising women's input and needs for development. Some examples of best practices for tracking and closing the gender equity gap in STEM in Africa have begun to emerge, which alongside structural change can help bring transformation.

The UNESCO STEM And Gender Advancement (SAGA) project aims to contribute to improving the situation of women and reducing the STEM gender gap in education and research. SAGA assesses sex-disaggregated data and supports the design and implementation of science, technology, and innovation (STI) policy instruments that affect gender equality.

To track and monitor women's representation, the African Development Bank's gender equality index captures progress on the appointment of women to posts of responsibility. The index portrays the legal, social, and economic gaps between men and women,

For UNESCO STEM And Gender Advancement (SAGA) see <https://en.unesco.org/saga>



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