“Glass Ceiling,” a term used to identify an environment in which advancement of women or minorities is restricted, strongly suggests that the members of these groups are already part of an organization. Perhaps another term, possibly “Glass Door,” should describe the obvious disparity of female and minority participation the engineering profession. All conditions being equal, the type of preparation, alma mater and social network, when the employment door actually opens are essential to actually landing a position in an establishment. If we analyze the processes involved in preparing under-represented groups, a number of concerns will surface - ones that have been adequately addressed and others, not so much. Minority students have low participation rates in international programs and internships. Experiential educational opportunities that increase self-confidence and other soft skills such as respect and appreciation for other cultures. Thus, under-represented cohorts may not possess interview skills to clearly articulate their abilities and impress employers. Therefore, while affirmative action might facilitate getting an interview, there is no policy in place guaranteeing a call back for the job.

The issue of under-representation in Science, Technology, Engineering and Mathematics (STEM) fields seem to be deeply entrenched across various societal contexts. In countries like the United States, this deep-seated issue continues to baffle stakeholders. While women comprise more than half the U.S. population, they represent less than 13% of the engineering workforce (NSF, 2015 Women, Minorities, and Persons with Disabilities in Science and Engineering). Contemporary challenges in educating minorities and other under-represented cohorts in engineering and other STEM fields include low enrollment and graduation rates, as well as psychological, social, and environmental barriers.

Over the years, although several strategies including first-year seminars, internships, learning communities, and capstone projects have been promoted to curb the minority brain-drain from engineering programs, these measures, typically implemented piecemeal, target under-preparedness without consideration for other competing and causative factors such as the lack of self-directing competencies. To sustainably increase the number of women, minorities, and other under-represented
groups completing engineering degrees and successfully navigating professional career paths, there needs to be 1) research into international perspectives on student preparation and success; 2) elucidation of the sets of common socio-cultural, psychological and environmental factors that facilitate engineering students’ success in the major education systems globally; and 3) the proposal of high impact, non-traditional strategies such as study and interning abroad that harness multiple factors and address several student deficiencies simultaneously.

This book provides a global perspective on the importance of diversity and inclusivity for the sustainable growth of the engineering profession, which can also be extended to other STEM fields. It is timely and adds new dimensions to this ongoing and globally germane conversation.

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