Chapter 45
Disability and Careers in Science, Technology, Engineering, and Mathematics

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ABSTRACT

According to official statistical data, people with disabilities are underrepresented in STEM (science, technology, engineering, and mathematics) occupations and students with disabilities are underrepresented in STEM degree courses. This chapter surveys official reports produced by British and American authorities, as well as a number of media sources, in order to substantiate this claim. The authors' aim is to uncover the reasons behind disabled students being underrepresented in STEM courses and to sketch the vision for the future of disabled young people who may be interested in perusing careers in science, technology, engineering, and mathematics.

INTRODUCTION

This article investigates claims that people with disabilities are underrepresented in STEM (science, technology, engineering and mathematics) occupations and disabled students are underrepresented in STEM degree courses. The authors' aim is to address the issue of underrepresentation of disabled students in STEM in addition to investigating the reasons why students, in general, may not choose to pursue careers in science and technology. Whilst looking for causes that prevent satisfactory inclusion, the paper examines cases where institutions have been successful in integrating disabled students in STEM degree courses. Moreover, the paper also presents views expressed by accomplished STEM professionals who have a disability.

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BACKGROUND

Despite governments' efforts to increase inclusivity in all areas of higher education and improve disabled people's access to professional careers (Lukianova & Fell, 2016), and despite the substantial body of research dedicated to disability issues in higher education (Fuller & Healey, 2004), people with disabilities continue to be underrepresented in STEM (science, technology, engineering and mathematics) occupations and disabled students continue to be underrepresented in STEM degree courses (both undergraduate and postgraduate). In the UK, for example, "[d]isabled STEM students 57% less likely to take up postgraduate STEM study than non-disabled students" (Improving Diversity in STEM, 2016).

CaSE (Campaign for Science and Engineering, the leading independent advocate for science and engineering in the UK) published a report titled "Improving Diversity in STEM" in May 2014 highlighting the fact that "[d]isabled people are less likely to work in STEM occupations than their counterparts without disabilities" (Improving Diversity in STEM, 2016).

It is increasingly important to address the issue of underrepresentation of disabled students in STEM in addition to investigating the reasons why students in general may not choose to pursue careers in science and technology, such as Holmegaard's investigation of students' "transition process from end of upper secondary school to university" (Holmegaard, Ulriksen & Madsen, 2010). It is also important to look for solutions and examine cases where institutions have been successful in integrating disabled students in STEM degree courses (Adams & Brown, 2011).

METHODOLOGY

Using desktop research as a method of this enquiry, the authors survey official statistical data produced by the US and UK authorities extracting information relevant to disabled people's employment in STEM professions and disabled students enrolled in STEM degree programs. The authors also examine official reports that contain relevant information about disabled people and STEM and draw on the disabled STEM professionals' testimonies in order to ascertain that disabled people do indeed encounter specific difficulties whilst trying to pursue STEM careers, begin to understand the nature of those difficulties and evaluate future prospects for disabled people's participation in STEM occupations. (Reaney, Gorra & Hassan, 2011)

Formulating the Problem

The STEMM Disability Advisory Committee (STEMM - science, technology, engineering, mathematics, and medicine) organised a conference "Future Directions in STEMM for People with Disabilities" in March 2016. Conference participants raised concerns about disabled people's employability in STEMM professions (STEMM Disability, 2016).

Martin Hollins, Chair of the STEMM Disability Advisory Committee, draws on the Resolution Foundation's report to highlight the need to address the issue of employability of disabled people. (The Resolution Foundation Paul Gregg & David Finch, 2016)

Gregg and Finch's report firmly links disability and poverty as "a substantially higher proportion of people living in households with a disabled person are in poverty – 22 per cent of working-age adults