

## Transformative Research Approach for Women with Disabilities and STEM in International Development

Donna M. Mertens, Gallaudet University

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It seems unnecessary to point out that women and girls with disabilities are not represented in STEM education and careers in proportion to their representation in the population because this information is widely available (Thurston, 2011; Ortoleva, 2011). It also seems unnecessary to point out the arguments, such as provision of employment and economic improvement, that support the importance of implementing strategies that would enhance women and girls with disabilities participation in STEM because these have also been discussed by these same authors as well as many others. Another issue that has already been discussed by these authors is the barriers that prevent women and girls from having access to STEM education and careers. Hence, I will not repeat these arguments here because we do not need more rhetoric about the problem and the need for solutions. Rather, I make a four-pronged argument that a transformative rights-based approach provides one mechanism to increase the presence of women and girls with disabilities in STEM education and careers in international development. The four prongs include: the nature of challenges experienced by people in developing countries that are exacerbated for women and girls with disabilities but that have solutions based on STEM knowledge and practice; the need for a rights-based transformative research agenda to develop and assess the effectiveness of solutions for challenges women and girls with disabilities face in terms of STEM education and careers, the need to include women and girls with disabilities in the research approach; and the importance of including this approach in the academy.

### STEM-related Challenges in International Development

The United Nations Commission on the Status of Women (2011) recognized the nature of challenges faced by women and girls with disabilities that are have relevance to STEM education and careers in the agreed conclusions from the 55<sup>th</sup> session:

The Commission expresses continued concern at the negative impact of the global crises, such as the financial and economic crisis, the food crisis and continuing food insecurity, and the energy crisis, as well as the challenges posed by poverty, natural disasters and climate change, on the empowerment of women and girls, including their access and participation in education, training, science and technology. (p. 3)

Rouso (2011) identified other barriers for women and girls with disabilities that prohibit their abilities to participate in STEM education and careers: transportation barriers, architectural barriers, and safety issues. Ortoleva (2011) added that barriers are not just physical; they can also be cultural, attitudinal, and linguistic. Rukunga and colleagues (2006) point out that issues such as lack of access to clean water and sanitation is more pervasive for people with disabilities in Africa, and even more so for women and girls with disabilities. These are all issues that could be addressed by better access to STEM education and careers for women and girls with disabilities. Rights-based, transformative research provides one

mechanism to support development of effective interventions to reduce barriers, increase access, and solve these pressing problems.

#### Rights-based transformative research approach

A transformative rights-based approach to research is particularly appropriate to address the needs of women and girls with disabilities in regard to STEM education and careers because the UN Commission on Women (2011) in its 55<sup>th</sup> Agreed Conclusions stated:

The Commission stresses that education is a human right, and that equal access to education, training and science and technology empowers women and girls in the context of global economic and technological changes and promotes development, all human rights, human rights education and learning at all levels, as well as gender equality, the elimination of all forms of discrimination and violence against women and girls and the eradication of poverty

A transformative rights-based approach recognizes the ethical principles that researchers have a responsibility to prioritize the support for human rights and to challenge conditions of oppression (Mertens, 2009; Mertens, 2014). Hence, the researcher has a responsibility to create novel scientific knowledge that does not just progress in the diagnosis of the social problems but which also informs policies or actions aimed at reversing them (Marti & Mertens, 2014). Past research tends to describe the mechanisms through which the inequalities women and girls with disabilities suffer and how they get reproduced rather than to identify and analyze the existing counterhegemonic activity in which these same communities are already engaged. While researchers have not been democratically elected to tell society or policymakers what they should do or what kind of policies they have to implement, we are obligated to provide scientific evidence that results from rigorously designed research. Multiple accounts already tell us that we can find transformation in the space inhabited by mixed methods research (Freshwater, 2012) on a wide range of topics. For instance, this shift is found in fields ranging from gender violence (Hearn et al., 2012) to health literacy (Flecha, Fernandez de Sanmamed, Ruiz Eugenio, & Vrečer, 2013). Along these lines, underserved communities, especially women and girls with disabilities, policymakers, and professionals would gain much from mixed methods research that analyzes existing successful cases of transformation.

#### Inclusion of women and girls with disabilities in research

Rights-based transformative research is premised on the importance of understanding the multiple versions of reality, the social positioning that leads to those different versions of reality, and the consequences of accepting versions of reality that either support an oppressive status quo or have the potential to lead to the social transformation in the form of improved human rights. For example, versions of reality that hold that women and girls with disabilities need to be protected or that such women and girls are incapable of learning STEM related content, then these versions of reality sustain an oppressive status quo. These versions of reality can be challenged by means of research that supports that there are community practices and policies that can keep women and girls safe and that demonstrate that they have the capability with appropriate accommodations to learn STEM content, then this is the pathway to their enhanced rights. Research of this nature means that the perspectives of

women and girls with disabilities have to be a central focus and that researchers need to address issues of power and language for appropriate inclusion.

Rights-based transformative research leads to an obligation to involve the people who are being “researched in the studies to ultimately make sure that the knowledge produced, in its conceptual and applied dimensions, is more accurate and useful to civil society. In other words, the need to include the voices of the ‘researched subjects’ into the process of investigation aimed at putting scientific knowledge at the service of the public served. This represents progress in reference to moving from research ‘on them’ to ‘with them’. Traditionally, research conducted about one community, but without them, has led to the perception of academic people as foreigners who, instead of researching with the aim of returning recommendations or orientations to improve those groups’ disadvantaged situations, are guided by their own self-interests. In other words, research does not necessarily serve the needs of the less powerful people who have traditionally been excluded from the research (Marti & Mertens, 2014, p. 2) Ending up with the exclusion of the historically voiceless in research and academia requires seeking original ways of involving them throughout the entire process of investigation, aimed at pursuing the social validity and usefulness of research (Mertens, 2009; Mertens & Wilson, 2012; Puigvert, Christou, & Holford, 2012).

In the Academy

Currently I teach a course in the MA program in International Development at Gallaudet University called Gender and Disability in International Development. The students in this course are doing field placements around the globe in which they are working on development projects to serve people with disabilities. Based on the course activities and their experiences in-country, the students complete an action plan for interventions that address the rights of people with disabilities using a transformative lens. This academic model has potential for application to improvement of educational and employment opportunities for women with disabilities in STEM.

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