

Examining Gender in Higher Education (EGHE): exploring gendered patterns of participation and success in STEM and beyond. A UK-African Countries Network.

The proposed network, *Examining Gender in Higher Education* (EGHE), draws together academics and activists to share and build knowledge and expertise on key areas of concern in gender and higher education (HE) comparatively across a range of African countries as well as the UK; and to build the foundations for sustained research that will address key issues of pressing concern in the field. One key area of concern has already been identified: participation and success of women students in STEM subjects. This is a crucial focus area in relation to the goals of gender equality and social justice, and directly supports key priorities of network member countries in terms of economic and infrastructural development.

Scoping work will be undertaken in this focus area and also more broadly on issues related to gender and higher education in member countries as part of the EGHE network's activities, in order to produce policy briefings and to identify and develop further key areas for future collaboration (including a joint research bid). The network involves a collaborative partnership between academic colleagues with interdisciplinary expertise based in Rwanda, Uganda, and The Gambia; and at the University of Glasgow, UK, where the administration of the network will be undertaken. Finally the network will benefit from partnership with a prominent pan-African NGO working on issues relating to gender and education, with a key identified focus on STEM: the Forum for African Women Educationalists (FAWE).

Background context and rationale

In the vast majority of 'developed' countries and those in transition, women are now in the majority as undergraduate students. However in many countries, especially in sub-Saharan Africa, South, West and East Asia, men remain in the majority at undergraduate level. There remains an urgent need to address the participation of women in HE across the world and across subject areas (see UNESCO 2010), emphasised by the continued prioritisation of equal access in terms of gender to "affordable and quality technical, vocational and tertiary education, including university" in the Sustainable Development Goals (SDG 4.3).

Of particular relevance to this network is the role gender plays in potential students' choice to study STEM subjects and their success once at university in these fields. Globally, women represent less than a quarter of students on average in 'engineering, manufacturing and construction', and not much over a third in 'agriculture' and 'science' (UNESCO, 2008). In Sub-Saharan Africa, the highest proportion of women students are in 'humanities and arts' (47%), followed by 'health and welfare' (44%), 'social science, business and law' (42%) and then 'education' (39%). 'Engineering, manufacture and construction' is the subject field with the lowest proportion of women students in all world regions (ibid.). A longstanding, popular, and seemingly global discourse constructs girls and women as seemingly innately less able in relation to STEM subjects in comparison to boys/men (see e.g. Bombardieri, 2005). Moreover the scientific subjects most often pursued by women in higher education in many countries are those seen as 'gender appropriate', for example the social and biological sciences (Bebbington, 2002). Such perceptions infuse teacher and parental expectations, and influence a students' own self-perception as to their capabilities, enjoyment and interest in a particular line of study (Francis, 2000; UNESCO 2010; Archer et al., 2012). A sustained challenge to these discourses has been organized by feminists, educationalists and STEM area academics/organisations to try and counter such discourses (see e.g. Athena Swan in the UK, and the work of the Forum for African Women Educationalists (FAWE). Our network's identified focus on STEM subjects speaks to SDG 4.4, which sets out the need for relevant skills including technical skills for employment, and SDG 5.5, which demands full and effective participation of women in all levels of life.

As well as a concern with access and subject choice, it is crucial to explore issues relating to gender more broadly in academic curricula, policy and pedagogical practice, as well as potential inequalities of lived experience of students and staff. With regard to UNESCO's early Millennium Development Goals (MDGs) in Education, Unterhalter (2016) has pointed out that these goals

concentrate on relatively narrow indicators. Moreover, pre-existing gender and other social inequalities in wider society can mean that policy initiatives regarding gender run into problems at the level of planning and delivery. As Pereira (2007, p. 186) notes, 'It is much easier to increase access to university education for women than it is to change gendered power relations'. It is vital, therefore, to explore in depth the complexities of academic culture, policy and practice in HE and the experience of staff and students, in order to effectively challenge existing inequities based on gender and other aspects of social identity/positioning.

Research has shown worldwide that gendered conceptions of the 'ideal' or 'typical' university student (generically, and for particular subject areas and particular types of institution) are prevalent in popular social, cultural and media discourse. Historically and globally, university institutions predominantly or solely admitted male students (who were also predominantly elite/upper or middle-class), taught predominantly or solely by male lecturers from similarly privileged backgrounds (Dyhouse 2006). Today, the picture has changed markedly in many countries, to the extent where some media commentators/policy makers have expressed concern at the perceived 'feminization' of higher education (see discussion in Leathwood and Read, 2009). However, feminist educationalists have pointed out that, firstly, whilst there has been a marked increase in women students and a significant increase in numbers of women faculty in HE institutions across the globe, there are a number of countries and regions where women are still in the minority both as staff and/or students. Even in countries such as the UK and USA where women form a slight majority of students and junior staff, women are still very much in the minority in terms of senior roles in the academy (Bagilhole and White, 2013).

Additionally, in many ways a numerical increase has not meant a change in the 'culture' of academia itself (Read et al., 2003; Morley 2005; Idahosa and Vincent 2014). This includes the sorts of knowledges that are valued at university (for example the valuing of 'hard' sciences which are culturally associated with the 'masculine'- Hekman, 1990; Harding, 1991; Schiebinger, 1999; Nosek et al., 2009) and favoured ways of speaking, writing and acting for staff and students. For example academia tends to place high value on confident, 'assertive' writing styles that due to dominant notions of 'appropriate' gender behaviour can sometimes be harder for women to comfortably adopt (Leathwood and Read, 2009). In addition, such forms of knowledge and practice are highly Eurocentric and reflect dominant 'western' values and 'ways of knowing' (Third World Network, 1993; Harding, 2013). The figures for recruitment do not take into account intersectional issues – the ways in which other aspects of identity such as ethnicity, nationality, geography and socio-economic background interact with gender (Hill Collins, 1990, 2012; Morley, 2005). Research conducted thus far indicates that socio-economic background plays a major role in participation and success at university worldwide (see e.g. Morley, 2005; Moreau and Leathwood, 2006; Ljhabamba et al., 2006) with associated gender effects: Pereira (2007) notes for example, in a Nigerian study, that when resources are low boys' education is often prioritised.

Gendered discourses of the 'ideal' student, nuanced with other aspects of identity, in turn impact on teacher/parental expectations of children's capabilities and potential futures, as well as students' own perceptions of their capabilities and aspirations. For example, a number of studies have shown the ways in which an individual's social identities/ positionings influence their conception of whether university is a place 'for people like me', and if they do decide go to university, which 'type' of institution and which subject area they feel comfortable pursuing, including, as we have noted, STEM subjects: a situation of key concern for economic as well as social justice and human development goals (Read et al., 2003; Reay et al 2005; Stuart et al. 2011).

Network Aims

Overall aim: To bring together academics with expertise and interests in gender and HE, and gender and STEM in the UK and in a range of African countries to benefit from mutual knowledge exchange.

Sub-aims:

- To collaborate on activities that will expand/exchange knowledge on current issues of concern affecting women's participation and success at HE (as students/graduates and/or academic staff) in the countries involved (looking at issues in individual countries and also comparatively across countries)
- To specifically look at the issue of women's participation in, experiences of, and success at a range of STEM subjects in the participating countries (again with national and comparative foci)
- To encourage cross- and interdisciplinary collaborations (notably between educationalists, sociologists and STEM academics)
- To develop the research capacity of ECRs in all participating countries
- To provide strong research links that will form the basis for future collaborative research projects on these themes

In establishing the EGHE network we plan to lay the groundwork for research which is genuinely multi- and inter-disciplinary; that explicitly springs from a feminist/social constructionist view of gender and gender inequalities; that views such inequalities from an intersectional perspective, taking into account the interplay between gender and other aspects of identity such as social class/position and 'race'/ethnicity. Finally by emphasizing a comparative perspective across all participating countries, the network seeks to counter discourses of girls' and women's education in Africa that implicitly homogenise such experience across the continent (MacDonald, 2016).

Network Activities, Impact and Intended Beneficiaries

Network members are specialists in gender and/or STEM from an academic and/or activist perspective, and are based in Rwanda, The Gambia, Kenya, Uganda, and the UK (where the network will be administered). Skills and expertise that will be shared by members are outlined in the Justification of Resources section. The network will also include a number of other invited researchers/academics, including Early Career Researchers, to contribute to activities/outputs such as jointly written papers and co-development of bids for external funding.

The network will create impact in relation to policy and practice within and outside HE institutions, by engaging with policymakers, practitioners, and other stakeholders through the following activities:

*The development of an **international web/social media presence** for EGHE, to act as a 'virtual home' for dissemination and to support future collaborations after the end of the initial network phase

***Scoping Exercise 1: Gender and STEM in HE**, to ascertain the nature of the current situation in relation to women's access to/success in STEM subjects as students and staff in the network countries; the policy measures, programmes and initiatives already taking place in these countries /regions; and outlining which steps would be most beneficial for future progress

***Scoping Exercise 2: Identifying Further Key Concerns**. An over-arching comparative literature review/scoping exercise to identify further pressing issues in the area of gender and HE in network member countries

*The publication of **two briefings** (one for each of the two comparative scoping exercises) **targeted at policymakers** and non-academic potential future collaborators

***Network showcases** to be held at FAWE's triennial general meeting and at key international conferences, showcasing the network's activities and future plans

*Joint academic publication of a **peer-reviewed journal paper** and development of a collaborative bid for research funding based on the results of the scoping exercises

***Video footage** of relevant activities/events in member countries to be collated into a single film for the network site/blog

By reaching and involving policymakers, practitioners and stakeholders with these activities, the EGHE network will facilitate the generation and exchange of knowledge designed to aid progress towards gender equality in HEIs across network member countries, and aims for global relevance and reach. More directly the intended beneficiaries are HE education providers, policymakers, education practitioners and activists, particularly those working or based in DAC-listed countries.