



Mapping Meritocracy: Intersecting Gender, Poverty and Higher Educational Opportunity Structures

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Widening participation in higher education can be a force for democratization. It can also map on to elite practices and contribute to further differentiation of social groups. Those with social capital are often able to decode and access new educational opportunities. Those without it can remain untouched by initiatives to facilitate their entry into the privileges that higher education can offer. This article is based on our ESRC/DFID-funded research project on Widening Participation in Higher Education in Ghana and Tanzania: Developing an Equity Scorecard (www.sussex.ac.uk/education/wideningparticipation). Meritocratic discourse infers that individual achievement is the most important principle determining access and success in higher education. The project is statistically and discursively deconstructing merit. We are mapping meritocracy in order to identify if the most marginalized communities are being included in the widening participation agenda. In this article, we demonstrate how current opportunity structures reflect traditional beliefs about meritocracy and reproduce privilege and exclusion. We argue that when gender is intersected with socio-economic status, participation rates of poorer women are seen to be extremely low in both African countries.

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Global gender equity?

The international policy world constructs higher education as a global ‘good’ (UNESCO, 1995, 1998; World Bank, 2000). As such, there are questions about who participates, where, what they study and how raising participation rates in higher education can contribute to societies’ economic and social development and reduce poverty (World Bank, 2002; Commission for Africa, 2005). These are all contentious connections, often underpinned by contradictory discourses. Meritocracy needs to be mapped in order to identify if the most marginalized communities are being included in the widening access agenda.



Widening participation is repeatedly framed in terms of social justice and inclusion while also being driven by neo-liberal discourses of the knowledge economy and the self-maximizing, productive, innovative individual whose educational capital will contribute to national economic development (Walkerdine, 2003).

Internationally, women have been identified as a group in need of inclusion into the private and public goods that higher education can offer. The World Declaration on Higher Education identified equitable participation for women as an urgent priority for the sector (UNESCO, 1998, Article 4). This included changing gendered patterns of participation at different levels within the system of higher education, and across all disciplines of study (UNESCO, 1998). It is still questionable whether gender gains have been a victory for democratization or if they have reinforced social privilege. Widening participation initiatives can map on to elite practices and contribute to further differentiation of social groups. Those with social capital are often able to decode and access new educational opportunities. Those without it can remain untouched by initiatives to facilitate their entry into the privileges that higher education can offer.

It is important, however, to celebrate the marked gender gains. Globally, the Gender Parity Index (GPI) for higher education is 1.05, suggesting that overall rates of participation are slightly higher for women than for men (UNESCO, 2007, 132). Yet there has been little international research attention paid to how gender intersects with other structures of inequality, for example socio-economic status. Hence the gender gains might be masking more persistent inequalities in higher education access, particularly in relation to poverty. The gender gains have also caused other forms of moral panic. There is much talk about the feminization of higher education. Some western feminist scholars are taking issue with popularist beliefs that women are taking over the academy and that their newly found professional and economic independence is responsible for societal destabilization and a crisis in masculinity (Quinn, 2003; Evans, 2008; Leathwood and Read, 2008).

When discussing the gender gains, it is important to indicate how women's participation in higher education is unevenly distributed across national, disciplinary and institutional boundaries. In 2005, participation in higher education was greater for women than for men in four regions of the world: Northern America and Western Europe; Central and Eastern Europe; Latin America and the Caribbean, and Central Asia. Yet, in East Asia and the Pacific, South and West Asia and Sub-Saharan Africa, participation rates for men continue to outstrip those for women and the GPI in each region remains below 1 (UNESCO, 2007). Could it be that women in these regions are so lacking in merit that they are excluded from higher education, or are the stories behind the statistics more socially complex?



When women of all socio-economic backgrounds do enter higher education, they are often concentrated in subjects associated with low-wage sectors of the economy (World Bank, 2002). In many countries, two-thirds to three-quarters of graduates in the fields of Health, Welfare and Education are women. In regions where enrolment rates of women are lower than for men, men also dominate these disciplinary areas (UNESCO, 2006, 19). Globally, men predominate in subjects related to Engineering, Manufacturing and Construction, and Maths and Computer Science (OECD, 2007). Academic identity is often constructed and enacted via disciplinary choice and location. The gendering of disciplinary choice is important because higher education subject areas track students into different types of occupations and social hierarchies, thus contributing more widely to gender inequalities in civil society.

The feminization debate does not include leadership in higher education. It seems to relate to female participation at undergraduate level in some programmes and in some geo-political regions. Women's leadership is not always perceived as sufficiently important to measure, monitor or map. International data on gender equity among heads of universities are noticeably uneven. Since 1998, the Association of Commonwealth Universities (ACU) has attempted to address this lack of data with five yearly analytical reports of data collected for the Commonwealth Universities Yearbook (Lund, 1998; Singh, 2002, 2008). Its most recent publication (Singh, 2008) reports that in 23 of the 35 countries in the Commonwealth from which the ACU receives gender disaggregated data, *all* universities are led by men (Singh, 2008, 12). The organization notes 'the depressing reality ... of a still relatively stable hierarchical pyramid in which there are fewer and fewer women the higher up the ladder of seniority one looks' (Garland, 2008, 4). Women's participation in leadership of universities in the Commonwealth has remained stable over the past decade. Throughout this period, only 1 in 10 Vice Chancellors or Presidents of Commonwealth universities has been a woman (Singh, 2008, 12).

While patterns of representation among women have remained largely unchanged in leadership, women are faring slightly better in academic positions (Singh, 2008). Women's participation as Professors and Associate Professors has increased marginally across the Commonwealth during the past decade. In 1997, 9.9% of Professors and 23.3% of Associate Professors were women. By 2006 this had risen to 15.3% of Professors and 29.1% of Associate Professors, Readers and Senior Lecturers (Singh, 2008, 46). During the past decade the proportion of women Heads of Administration decreased from 18.6% to 16.2% (Singh, 2008, 45).

Among Commonwealth countries, women's participation in management and academic leadership tends to be higher than average in high-income countries such as Australia, Canada and the United Kingdom, as Figure 1

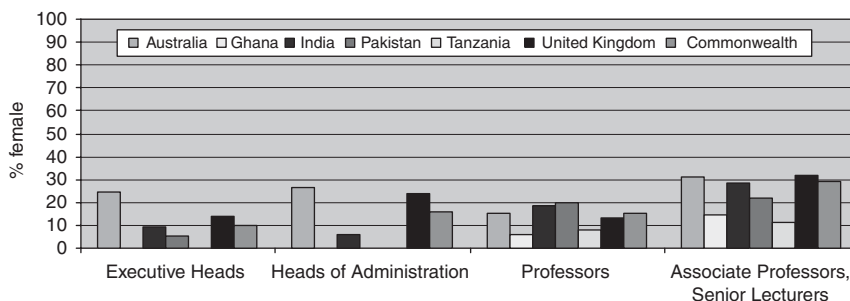


Figure 1. Women’s participation in management and academic leadership in selected Commonwealth countries, 2006.

Datasource: Singh (2008, 11–33).

shows. Very few women are appointed as Head of Administration in South Asian or African Countries (Singh, 2008).

At this stage of the argument, it might seem as if the issue of gender and leadership directly maps on to economic contexts, and that women’s under-representation in senior positions in higher education correlates, or indeed is caused by poverty and under-development. So, it is worth shifting the focus to another geo-political area. The European Union examines systematic evidence of gender imbalances among scientists and researchers, and maps progress towards gender equity through the *She Figures* series launched in 2003 (European Commission, 2006). *She Figures 2006* provided gender disaggregated data for the 25 member states of the enlarged European Union and seven countries associated with the 6th Framework Programme, namely Bulgaria, Switzerland, Iceland, Israel, Norway, Romania and Turkey. The European Commission (2006) revealed that only 15% of those at the highest academic grade (Grade A)¹ in higher education in the European Union were women (Figure 2). This can be seen in UK figures. In 2006/2007, women comprised 42.3% of academics, but only 17.5% of professors in higher education institutions in the United Kingdom (Lipsett, 2008).

The disappearance of women in the higher grades is evocative of Sen’s construct of ‘missing women’ (Sen, 2003; Martin, 2008). Women disappear when power, resources and influence increase. Again, questions can be posed about the gendering of meritocracy. We have seen that while some women in certain countries and disciplines are entering the academy as students, women are not significantly occupying positions of power within higher education organizations on an international basis. This reflects women’s under-representation in leadership internationally and multi-sectorally (Davidson and Burke, 2004). So a question to consider is whether gendered opportunity structures only relate to women staff as women students appear to be flourishing?

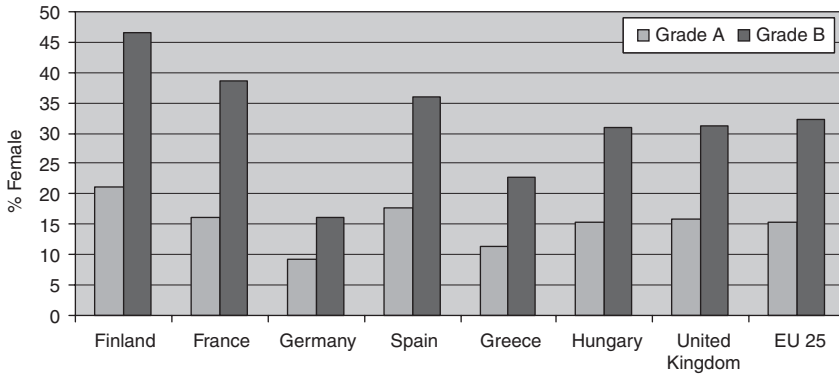


Figure 2. Proportion of female academic staff by grade¹ in selected countries of the European Union, 2004.

Data source: European Commission (2006, 57).

Who gains?

International debates on the ideology of widening student participation policies question whether they are a force for democratization or differentiation (David, 2007). Initiatives are perceived as a form of meritocratic equalization and/or as a reinforcement of social stratification processes. Those with social capital are often able to decode and access new educational opportunities. Those without it can remain untouched by initiatives to facilitate their entry into the privileges that higher education can offer. There has been scant research into the motivations, subjectivities, educational trajectories and experiences of people from socially disadvantaged groups trying to enter and achieve in higher education systems in low-income countries. In a globalized knowledge economy, the twin questions of who is participating and where demand close analysis.

There is little theory of difference in higher education policy. Policy discourses often prioritize one structure of inequality, or treat each 'group' of disadvantaged students as a monolithic category. There is a liberal feminist approach that suggests that the endpoint is to get more women into male-dominated domains (Weiner, 1994). International policy (UNESCO, 1998; World Bank, 2000) on widening participation draws attention to 'women', or 'students from disadvantaged backgrounds' or 'rural students'. Yet, there are multiple markers of identity that inter-relate. Gender is not a solitary social construct. Women's lives are structured by a range of identities and women are different from each other. While gender has received some policy and research



attention it is rarely intersected with other structures of inequality in low-income countries.

Intersectionality theory examines relationships between socio-economic and socio-cultural categories and identities. It analyses how multiple identities interact in experiences of exclusion and subordination (Crenshaw, 1989; McCall, 2005; Davis, 2008, 67). It is an analytical corrective to more simplified additive approaches to women's oppression. Within social relations of systemic inequality, differing forms of oppression may be mutually reinforcing. Multiple marginalizations at individual and institutional levels create stratification and require policy solutions that are responsive to these complex interactions (Hancock, 2007). For example, in UK higher education policy, socio-economic status is of paramount importance (DFES, 2003). We are informed that while around 43% of 18 year olds from higher socio-economic backgrounds gain two or more A-levels, only 19% of those from lower socio-economic backgrounds do so. In this analysis, social class is not gendered and working class students are constructed as a homogenous *bloc*. However, in the wider social terrain, poor women fall into at least two socially disadvantaged groups and can become the invisible 'other' in audits of gender or social disadvantage. Gender gains, in the form of affirmative action and access programmes, when scrutinized can often mask socio-economic privilege (Morley *et al.*, 2006).

Mapping meritocracy in Ghana and Tanzania

Having discussed the wider gender map of higher education, we would now like to focus on our current research project. Working with a public university and a private university in both Ghana and Tanzania, this project is providing a statistical overview of participation patterns in the two African countries. The project is developing Equity Scorecards to measure access, achievement and retention of socially and economically excluded groups in four case study institutions. The statistical data are being illuminated by the multiple voices from interviews with stakeholders who are rarely included in international policy arenas, that is academic staff, policy makers and students in selected programmes in each country.

Both countries have policy contexts for widening participation in higher education. International policies that emerged from UNESCO and the World Bank during the 1990s lent renewed support to concerns about access that had first been expressed in Ghana and Tanzania at independence. For example, following independence in 1957, the Ghanaian Government set up the Botsio Committee in 1959 to examine how to increase access to higher education (Antwi, 1992). In Tanzania, higher education post independence in 1961 was perceived as a 'powerful strategic weapon in the fight against poverty,



ignorance and disease' (Mkude and Cooksey, 2003, 583). Tanzania's post-independence Constitution affirmed the rights of all citizens to education 'to the highest level' (URT, 1998, 19). Yet, in spite of these aspirations, by the beginning of the 1990s, participation rates were low and men were the majority. In Ghana, in 1990 a total of 9,609 students were enrolled in universities (UNESCO, 1999a) representing a gross enrolment ratio of 1.4 (UNESCO, 1999b). Only 22.5% of students in higher education were women (UNESCO, 1999a). In Tanzania, in 1991 a total of 7,468 students were enrolled in universities (UNESCO, 1999a), a gross enrolment ratio of 0.3 (UNESCO, 1999b). Only 15.9% of students in universities were women (UNESCO, 1999a). During the 1990s, new policies for the reform of higher education emerged in both Ghana and Tanzania (GoG, 1991, 2004; URT, 1999). Similar in form to the international policies emerging from UNESCO (1998) and the World Bank (2000) at much the same time, the Ghanaian and Tanzanian policies expressed commitment to the expansion of higher education to larger numbers of students, and to a greater diversity of students, with a particular emphasis on attaining gender equity (GoG, 1991; URT, 1999). Widening participation in higher education, the policies argued, was essential for national development (GoG, 1991; URT, 1999). It is pertinent to ask if the macro-level policy momentum has succeeded in promoting meso- and micro-level changes in terms of organizational initiatives and the aspirations and learner identities of social groups who have traditionally not participated in higher education.

Intersecting structures of disadvantage: Developing Equity Scorecards

Central to our inquiry are Equity Scorecards (Bensimon, 2004). Equity Scorecards examine how diversity is translated into equity in educational outcomes (Bensimon and Polkinghorne, 2003). In this project, we are developing Equity Scorecards that measure intersections between social variables, for example gender, socio-economic status (based on deprived schools indicators) and age, and educational processes: access, retention and achievement in four organizations (two public and two private universities) and four programmes of study in each university. Central to the development of the Equity Scorecards are datasets on key education indicators disaggregated by age, gender and school attended. While data are available on each of these indicators at all the institutions involved in the study, such data have not yet been brought together to illustrate more complex patterns of participation.

The Equity Scorecard works with analytical categories to study inequalities. It interrogates changing configurations of inequality along multiple dimensions, including disciplinary and institutional location (McCall, 2005, 1772). Inequalities are deconstructed with statistical evidence provided for different



categories. The relationship between the different categories at different educational stages is then made more visible. This approach enables meritocracy to be mapped by definable, and indeed measurable, inequalities in the relationships between social groups (McCall, 2005). The Scorecards measure and examine both advantage and disadvantage simultaneously.

We acknowledge that indicators of socio-economic status are notoriously controversial. Furthermore, theories of social class do not always travel across national boundaries. In Africa, (regional) poverty, rather than social class, has more resonance with policy makers and institutions as a descriptor for socio-economic status. In educational terms, socio-economic status is often measured by the type of school attended. The indicator is differently defined in Ghana and Tanzania. In Ghana, a 'deprived school' is defined as being a (public) senior secondary school that has poor infrastructural facilities, non-qualified and insufficient teaching staff, and which will admit students who achieved lower average grades in the Basic Secondary School Certificate (UCC, 2007). In Tanzania, 'deprived schools' were defined as junior secondary government or community schools in the poorest 53 districts of the country.² However it is defined, socio-economic status seems to continue to be a hegemonic signifier in who enters, what they enter and when they enter higher education. Below are some examples of Equity Scorecards that have been constructed from raw datasets.

Table 1 shows that women's access is greater in Business Administration and Law, but lower in Medicine and B.Ed. Maths. The B.Ed. Maths has high participation rates for older students as it offers an access route to higher education for mature students, and employed teachers can take a sabbatical to improve their qualifications. However, students from deprived schools have low participation rates in all programmes, particularly in the high-status disciplines of Law and Medicine.

The Equity Scorecard in Table 2 reveals that in spite of women's increased participation in some disciplines, for example, Business Administration and

Table 1 Equity Scorecard 1: Access to four programmes at a private university in Tanzania, by gender, socio-economic background and age, 2007/2008

<i>Programme</i>	<i>All students on programme</i>		
	<i>Female (%)</i>	<i>Deprived school (%)</i>	<i>Aged over 30 (%)</i>
B.Ed. Maths	13.02	12.56	68.84
M.D. (Medicine)	25.00	6.03	12.26
B. Business Administration	42.06	10.28	18.87
L.L.B. (Law)	42.81	13.42	9.90

Source: Access datasets: Enrolment in Year 1, 2007/2008.

Date of Scorecard: 14 May 2008.



Table 2 Equity Scorecard 2: Access to four programmes for women and men from different social backgrounds at a private university in Tanzania, 2007/2008

Programme	All students on the programme						
	Female (%)	Female and aged over 30 (all schools) (%)	Male and aged over 30 (all schools) (%)	Female and deprived school (all ages) (%)	Male and deprived school (all ages) (%)	Female, deprived school, over 30 years (%)	Male, deprived school, over 30 years (%)
B.Ed. Maths	13.02	4.65	64.19	2.40	11.16	0.0	5.58
M.D. (Medicine)	25.0	1.89	10.28	0.0	6.03	0.0	0.87
B. Business Administration	46.06	7.48	11.32	3.74	6.54	0.0	2.80
L.L.B. (Law)	42.81	3.51	9.90	2.56	7.35	0.32	1.92

Source: Access datasets: Enrolment in Year 1, 2007/2008.
Date of Scorecard: 14 May 2008.



Table 3 Equity Scorecard 3: Gender inequity increases within under-represented groups at a private university in Tanzania, 2007/2008

<i>Programme</i>	<i>Female (%)</i>			<i>Gender Equity Index</i>	
	<i>All students</i>	<i>Students over 30 yrs</i>	<i>Deprived school</i>	<i>Mature students</i>	<i>Low SES</i>
B.Ed. Maths	13.02	6.76	11.12	0.519	0.854
M.D. (Medicine)	25.00	15.58	0.0	0.615	0.0
B. Business Administration	42.06	40.00	36.36	0.951	0.864
L.L.B. (Law)	42.81	26.19	25.81	0.612	0.603

Gender Equity Index: Percent female in group population/percent female on programme.

Source: Access datasets: Enrolment in Year 1, 2007/2008.

Date of Scorecard: 14 May 2008.

Law, they rapidly disappear when additional structures of inequality of age or low socio-economic background are taken into account. Furthermore, within communities disadvantaged by age or poverty, women’s participation is consistently lower than men from similar backgrounds, in all disciplines of study.

Table 3 shows that in all subjects, the Gender Equality (GE) Index is less than 1. This means that in this private university in Tanzania, gender inequality is greater within groups that are already under-represented. Gendered exclusion is weakest in combination with age in the Business Administration programme, but greatest in B.Ed. Maths. Scorecards reveal that some forms of inequality arise within contexts that reduce others. For example, as Table 2 reveals the B.Ed. Maths seems to be offering opportunities for men from deprived backgrounds but not for women from the same social category.

In Ghana, percentages of women’s participation in some programmes, for example B. Management Studies look promising on first sight. However, when gender is intersected with socio-economic status, participation rates of poorer women are seen to be extremely low. The above Equity Scorecards (Tables 2 and 4) provide evidence of exclusion and marginalization of some of the most socially disadvantaged groups from elite programmes of study. They raise questions about how gender intersects with educational opportunities. When meritocracy is systematically mapped, patterns of disadvantage and exclusion soon emerge.

Poor women seem to have the most difficulty accessing higher education in both countries. To help illuminate the statistics, we are conducting life history narrative interviews with 100 students in each country. Some major themes have emerged in relation to the construction and performance of gender. These relate to gender-appropriate disciplines and women’s entry into



Table 4 Equity Scorecard 4: Participation on four programmes at a public university in Ghana by gender and socio-economic background, 2006/2007

<i>Programme</i>	<i>All students on programme</i>		
	<i>Female (%)</i>	<i>Attended a deprived school (%)</i>	<i>Women who attended a deprived school (%)</i>
B.Sc. Physical Science	15.3	2.2	0.6
B. Commerce	28.9	3.3	1.0
B. Education (Primary Education)	41.4	4.6	1.2
B. Management Studies (BMS)	42.0	2.8	1.4

Data source: Participation dataset; enrolment on levels 100–400, by gender 2006/2007; enrolment of students from disadvantaged schools, by level and gender, 2006/2007.

Date of Scorecard: January 2008.

‘non-traditional’ areas such as Science and Engineering; the inevitability of marriage and motherhood and how this shapes educational choices and participation patterns; gendered family structures and the body and sexual harassment. The following sections will explore some of the qualitative data in relation to these themes.

STEMMING the flow

Science, Technology, Engineering and Maths are collectively known as STEM subjects in many of today’s higher education policy documents (HEFCE, 2005). There are strong beliefs that a country’s future development, wealth creation and competitiveness rests on the quality and quantity of STEM graduates. Innovation is intrinsically linked to the STEM agenda by many policy makers (Denham, 2008, 9). Some African countries, for example Nigeria, have allocated 60% of its higher education admissions to the STEM disciplines (Morley *et al.*, 2006, 82). The identity and social position of STEM disciplines appear to be fixed as high-status domains. The privileging of male-dominated disciplines could be seen as an indirect form of sex discrimination. Hence there is a global movement to encourage more women to enter STEM areas (Huyer, 2006). There are also policy concerns about the decreasing popularity of STEM subjects with both men and women — particularly in high-income countries (Institute of Engineering and Technology, 2008). A range of structured interventions exist. For example, in Tanzania, there are funded pre-entry programmes for women to enter Engineering. In a country with such a high poverty rate (URT, 2005), scholarships and bursaries can be



an incentive, as a Tanzanian woman student describes:

We are paid the tuition fee and we are being given the amount of money so as to live for the school, for paying the hostel ... and to eat. And they are giving us a little money for books and they have just given some books also.

While the participation rates for women in Engineering programmes is increasing in the University of Dar es Salaam (URT, 2006), there is still a widely held view that gender equality is just about allowing women into male-dominated disciplines and/or extending men's education to women. Hegemonic codes of femininity and masculinity continue to influence subject choice (Lapping, 2005). In many narratives, women seem to be in antagonistic relationship with the STEM subjects that they are studying. There is often conflict between codes regulating performance of femininity and codes regulating successful STEM academic performance. A Tanzanian woman student describes the liminality between her female social identity and the required male academic and professional identity:

It was the moment when I was working with the carpentry workshop. When we started working on the filling locks ... Things were very tough, but it was too hard to hold the jerk plane which we use to make the plain surface for the wood. It was too difficult. But when I came to finish that one, that is where it gave me the courage that I can do men's work.

Success is constructed as crossing a gendered threshold to become more like a man, rather than removing the gendered code from the activity. It is also seen as being with the men, blending and assimilating into the dominant male cultures, as another Tanzanian woman student relates:

We don't have problem of them {the men}, they are just giving us a very, in fact, hundred percent cooperation, unless otherwise you just isolate yourself from them. But if you don't isolate from them no, no problem. We are making friends, we are studying together, we are discussing together, no problem.

Difference is highly problematic. In Ghana, a woman student explains how disciplines are embodied, and that certain body types are associated or disassociated with STEM disciplines:

Normally, when people see me, they ask me what course am I doing I say optometry then everybody laughs — like six years in this school! And moreover I'm a girl and I'm doing this course. They are surprised. They are very surprised because I'm also not that big. I'm smallish in nature and they are very surprised ... Because normally females read art courses and even in our class we are only four girls and the rest are males.

There is still a traditional view that STEM subjects require physical strength (Morley *et al.*, 2006). Failing that, there is the imperative for cognitive strength. The hard/soft disciplinary binary (Martin, 2008) is a way of reinforcing gendered divisions, with a cultural script that suggests if a subject is 'hard' it is unsuitable for women, as a woman student in Tanzania explains:

Interviewer: And what, what has it been like to be a female student on Engineering, in general terms, because Engineering is well known to be a male dominated area?

Interviewee: Yaa, they are just claiming that the subjects in that field in fact it is difficult, so people have to fight. Maybe many females they don't want to work hard ... to disturb their heads, maybe that is the reason for me to find that there few numbers of females in Engineering.

This 'blame the women' emphasis relies on agency rather than structures for explanatory power. Women's identity as inferior scholars, incapable of reason, abstraction and disembodied, cerebral endeavours, haunts the literature on women's history of higher education (Dyhouse, 1995). In a meritocracy, with the door wide open, via increasing strategies to widen participation, the causes of disadvantage are located within under-represented groups. It must be the (poor) women themselves who lack the necessary capabilities and attributes to succeed. It would be easy to attempt to locate these views in low-income geopolitical regions. However, it was reinforced in 2005 in the United States in the controversial statements by Larry Summers, the then head of Harvard University in the United States (Bombardieri, 2005, 1). These misogynistic comments by a powerful member of the western academic establishment have caused many feminists to question whether any progress has been made on the 'woman question' in science (May, 2008).

The pressures of under-representation and the cultural messages about women's inabilities in STEM subjects can be demoralizing and a burden for women students. Minority status made an agriculture student in a private Ghanaian university feel like leaving the programme:

I decided to quit my course because I realized that in my class I am the only female for the evening school. So how come that I am the only female. Some people said it is so difficult and I couldn't take it but when I went to one or two people on campus and the staff, they encouraged me to go on with the course.

While STEM is undoubtedly gendered, it is rapidly becoming racialized, with almost 50% of STEM graduate students in the United States coming from overseas (ACE, 2006, 8). Indeed, whenever India and China are evoked as major rivals to western higher education markets, the sheer numbers of their



STEM graduates are cited as evidence of the threat to UK/US supremacy (NSF, 2007).

Fearing Maths

Mathematics has long been seen as a major educational filter. For centuries women and girls have been associated with underperformance in the subject area that can open up access into higher and further learning, and to a range of highly paid professional opportunities (Powell *et al.*, 2007). This has been theorized in terms of the gendered binary of emotion and reason; essentialist notions of women's capacities for logic and abstraction and the culture and pedagogy of mathematics (Burton, 1986; Boaler, 1997; Walkerdine, 1998; Mendick, 2005). While Maths has traditionally been constructed in relation to the abstract life of the mind, there is clearly an affective domain, with fear of Maths functioning to deter many women from STEM careers (Morley *et al.*, 2006). Assessment also provokes strong emotions, relaying key message systems about academic identity and worth (Pryor and Crossouard, 2008). This study abounds with reports of the strongest emotions — positive and negative — in relation to assessment. When fear of Maths combines with assessment anxieties and life course planning, there is a powerful response, as a female student in Ghana relates:

Interviewer: Anything that made you really sad in secondary school?

Interviewee: So, that was the disappointment I had when I couldn't pass all my papers, so I felt my dreams were like coming to an end or something.

Interviewer: ... Which subject?

Interviewee: Two, maths and then general science.

The emotional engagement continues even when women succeed in the subject. Another female student in Ghana describes how she is teased/shamed/socially excluded for being proficient in the subject:

I'm studying mathematics and in our level I'm the only woman, so sometimes they do tease me, they call me something, but I take them to be a joke or something. And sometime when there is something happening and I want to see or something they say 'oh as for you, we know you can make it so don't come and disturb us' or something so that's what sometimes maybe I feel bad.

Social and community norms can determine gender appropriate disciplines and professions. There is a dissonance between socially constructed



femininities and STEM professional identities, with one appearing to cancel out the other. A woman student in Tanzania describes how her community policed the boundaries of her career choice:

I think people when I was telling them that I am going to pursue my degree in Engineering, in one way or another they used to discourage me and say why are [you] going there? In one way or another they were pulling me back.

The female scientist as a contradiction can sometimes work in women's favour as a Tanzanian woman student relates:

It is very challenging, even when you go out there and tell people that, I am an Engineer, they take it as if a woman can not do Engineering work. They just see as if you are very genius, so that makes me feel good. It makes me feel better that I can also do it.

The policy context of affirmative action and gender equity initiatives in both countries meant that some informants felt that women were being 'favoured'. This is evocative of Fraser's (1995) theory of affirmative action as a type of reverse discrimination, or form of welfare that privileges some groups and disadvantages others. Minority status in some STEM areas left some women feeling visible, 'othered' and marginalized. While for others, the rarity value provided VIP status, as a Ghanaian woman student suggests:

Last semester, we were doing this abstract algebra. Our lecturer was like he was so happy about the ladies that he always made sure we understood everything that he teaches. So being a lady has favoured me.

Whenever benefit streams are disrupted and destabilized, power relations are deconstructed and reconstructed. Throughout our data, there are examples of measures to promote women being perceived as favouritism and discrimination against men.

The triangle of the family, school and community

When the institutions of family, school and community work together, there is a powerful momentum akin to a well-organized planning office for the individual child's success (Archer, 2003; David *et al.*, 2003; Reay *et al.*, 2005; Hussain and Bagguley, 2007; Crozier *et al.*, 2008; Heath *et al.*, 2008). A winning formula for entry into higher education seems to be parents who are (higher) educated, professional, affluent, ambitious, supportive and enlightened in so far as they do not discriminate against girls. When this capital is



added to a community or extended family brimming over with professional role models and a private, prestigious and frequently urban-based education there is a sure recipe for success. Not many of our informants had all these preconditions in place at any one time. Familial support was frequently gendered, with mothers providing resources for early years' education, often in the form of emotional comfort, feeding and discipline (Morley *et al.*, 2008). Fathers, whether they were living with their offspring or not, or had attended higher education or not, were more likely to encourage and construct higher education aspirations, as a woman at a private Ghanaian university identifies:

No, my parents did not go to the university especially my dad. So my dad — like if he was not able to go the university, it means he will also make sure like, he will also encourage — if he couldn't make it, that doesn't mean his children shouldn't make it. His children should also go far beyond what he was able to achieve.

The association of mothers with emotional and material comfort is a noticeable feature of our data, as a Ghanaian student relates:

My parents have been supporting me especially my mum ... Well my mum has been like; she has been giving me advice. Sometimes when I don't do well and I'm feeling sad she encourages me that this is not the end and I can really push forward to do better.

There is a morality of educational success, with academic effort elided with righteous living. Mothers often trained their daughters to be 'good girls' and this sometimes included being studious as a woman student in a Ghanaian private university suggests:

My mum, she is a nurse, a senior nurse always encouraged us to study hard, to be good children.

The mother as agent of social regulation was also noted by a woman student in a Tanzanian private university:

A big support is from my parents — especially my mama. She tells me a lot, go to hostel I cannot refuse you. But know if you do this and this, it is very bad, but if you do this and this, it is good. So you should behave according to the society in which I live. So I usually remember the words of my mother.

There is a multiplier effect of higher education, with familiarity breeding ambition. A student in a private Tanzanian university describes



how she has used her educational capital to influence her younger siblings' aspirations:

Most of the time I encourage my young sister and my young brother ... I usually tell them 'please study and study to go further'. So thank God to my young sister. She follows what I always tell her, so now she is in Form Six.

Contradictory data have emerged in relation to the value of educating girls and women. On the one hand, when resources are scarce, it is seen as a poor investment and as sons are thought to provide generational insurance, as a male student in a Tanzanian private university recalls:

For sure my sisters are very bright but the issue is school fees, always school fees was a problem ... We have an extended family, so the children of my uncles, aunties they also live with us at home the girls didn't get {Education} actually it is unfair and so disappointing ... They were actually disappointed but they were forced to accept it because there was no way out.

On the other hand, education is perceived as a form of capital that adds value to women's dowries, as a student in a public Tanzanian university suggests:

My mother did not have education for sure. I am not saying that education should make you say 'oh I have education' that you should be very, I don't know what should I say to you. But at least education can make your husband respect you because I believe that a father is head of the house but the mother is something more than even that head is the heart I can say. So education is important.

These observations also suggest that women do not have a right to education for themselves, but only in relations to others. This is evocative of the United Nations' normative view that if you educate a woman you educate a whole family (Pillay, 2007).

Discrimination against girls was sometimes the consequence of deeply sedimented cultural practices, with the gendered division of labour playing a major role in interrupting girls' educational opportunities. A woman at a public Ghanaian university relates how she was forced to enter the informal labour market and undertake domestic labour while still at school:

Because during that time as I said earlier, financial things were not so good but my brothers were there. Because they were guys when I come from school I was made to go sell, come back home, cook that kind of thing so things were not very smooth for me. If I were a boy I wouldn't been involved in all those things.



Compulsory heterosexism and the inevitability of marriage and motherhood as prescribed lifestyles for women were evident in the data from both countries. It was not a question of whether women would marry and give birth, but when. Higher education was perceived as disrupting hegemonic age-related marriage and motherhood norms, as a woman student in a public Ghanaian university explains:

When you finish you have to get married and start a family. So when will you finish school and get married and start having children and stuff? ... because people say the best time for you to give birth is around 26, 28 that way. But if you grow old you have complications. So this is the best time for you to be giving birth.

There is sometimes an oppositional relationship between women's participation in education and being in a sexual relationship. Women can either be in private or public spaces, but not both. Being a wife, whether voluntarily or by force, means automatic exclusion from education as a woman student in a public Tanzanian university relates:

There was one problem, that if a man or a boy likes a girl, for purposes of marriage he forces her to marry him ... so they took me, that time I was in Form III ... I left my school I lived with that man for about one and ... two or three months, then I told my father that I don't like to be in this life, I want to go back to school.

The forced nature of the above marriage was just one of many examples of normalized violence against women in our data. Abuse took a range of forms including sexual harassment, bullying, beatings in school and the home.

University communities globally can provide the conditions in which sexual harassment is naturalized and legitimized (Eyre, 2000; Britwum and Anokye, 2006; Zippel, 2006). Fear of sexual harassment or rumour of sexual liaisons between female students and male academic staff often meant that women were reluctant to seek tutorial support. A female student in a public Ghanaian university warns about the sexualization of educational success:

I'm not that close to the lecturers ... I don't get close to the lecturers ... Here when you get close to the lecturers they would think there is something going on with you and the lecturer. A female getting close to a lecturer and everybody starts thinking like you are going for marks or something, you understand? ... So that's the mentality that people have here that if especially a female gets close to a lecturer there is something going on.

Harassment and asymmetrical power relations were also evident within student communities. A woman student in a public Ghanaian explains how



women had to navigate a sea of unwanted sexual attention from male students which often ended in additional unpaid domestic labour:

They bother you. ‘Where are you? Where would I see you?’ And sometimes when you are not that strong too and they get you and they just use you and throw you away, or they will make you a housewife. You have to cook for them.

Gendered violence operates at every stage in education (Dunne *et al.*, 2006). A student in a private Tanzanian university recalls her primary school experiences:

I remember we used to have some boys who like to bully girls, I think it was Grade 4, the last day of school when we were closing, that’s when they wait for your time of leaving they just wait outside so they can beat you.

As the above narratives indicate, actual experiences of violence or fear of it have a detrimental effect on women’s participation and experiences of educational life. The violence and harassment mark out the territory as male, with girls and women having to occupy less material and discursive space for fear of unwanted and potentially dangerous attention.

Drawing it all together

We have seen that gender equity in higher education participation is being promoted at macro-level international and national policies for widening participation. While the correlation/causation dyad is problematic, it is a fact that women’s entry into higher education as students has increased significantly in many regions in the past 10 years. At meso-level, higher educational organizations have achieved some successes in encouraging women to enter the academy. Interventions have included affirmative action programmes, quota systems, bursaries and pre-sessional training. However, globally, women are still under-represented in leadership positions as staff, and poorer women are still under-represented as students in prestigious programmes such as medicine and law in low-income countries. Both these disciplines lead to dominant positions within social hierarchies (Bourdieu, 1996).

Mapping meritocracy via interviews reveals that educational aspirations and outcomes are socially constructed according to gendered and socio-economic codes and norms, forms of capital and opportunity structures. Socio-economic and gender privilege are coded as academic merit. Opportunity structures are constrained by cultural constructions of gender differences. The higher educated woman is in antagonistic relationship to other discursive



practices — especially in poorer communities. Data about familial and community influences and impediments reveal how gender inequalities are reinforced in terms of construction of academic identities, entitlements, resource allocation and messages about gender appropriate life courses.

Mapping meritocracy via statistical data demonstrates that when gender is deconstructed and intersected with socio-economic status, poor women disappear. While policy interventions fracture identity, it is easy to demonstrate quantitative success in each category. When gender is intersected with socio-economic status, participation rates of poorer women are seen to be extremely low in both African countries in this study.

We need to look in more detail about the gender messages that are being relayed via everyday practices at micro- and meso-level. Quantitative targets to let more women into higher education can fail, or be utterly meaningless while femaleness continues to be socially constructed as second class citizenship, or when gender excludes consideration of other structures of inequality and women's widely dispersed socio-cultural experiences. Gender is both a noun and a verb and is in continual production. Women's entry into higher education still seems to imply a cultural crossing, with ongoing quests for women's academic legitimacy. The question that remains to be answered is whether women's increased participation and achievement in higher education contributes to reducing poverty and democratizing rights and choices for all women in wider civil society.

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Notes

- 1 Grade A: Highest post at which research conducted, Professor. Grade B: Researchers not as senior as top position but more senior than newly qualified Ph.D. holder, for example Associate Professor, Senior Lecturer, Senior Researcher (European Commission, 2006, 50).
- 2 Deprived districts were defined as those where the percentage of households living below the basic poverty line is greater than the national average. This was found to be the case in 53 districts (URT, 2005).

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