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Education for people and planet: Creating sustainable futures for all

Gender equality and education in the Sustainable Development Goals

B y   R o s s i e   P e p p e n   V a u g h a n   2 0 1 6

I. Introduction[1]: Achieving substantive gender equality

In the second half of the 20th century, most countries saw progress in formulating women's legal and some social rights through constitutional entitlements. Reforms have included equal rights to voting, and expanding access to education at all levels. The concept of equality between men and women was set out in the Universal Declaration of Human Rights in 1948. Since then it has been foregrounded and elaborated on in a number of international agreements, most prominently the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW) in 1979, the Beijing Platform for Action in 1995, the UN Security Council Resolution 1325 in 2000 on women, peace and security, and most recently Sustainable Development Goal 5, 'Achieve gender equality and empower all women and girls', launched in 2015[2].

One development from these international declarations has been to build on these to secure legal rights for men and women equally, ensuring equality of access to institutions and non-discrimination in the distribution of public goods. In the last century, women have gained the right to vote and to stand for office in almost every country of the world; and by the time of the SDGs, 143 countries guarantee equality between men and women in their constitutions; 132 have equalised the minimum age of marriage without parental consent to 18 or older; 119 have legislated on domestic violence and 125 have passed laws to prohibit sexual harassment in workplaces and public spaces. An increasing number of countries have introduced law and policies to equalise women's status at work and provide maternity leave and childcare services (UN Women, 2015: 28-32).

However, despite guarantees through constitutions and a system of legal and institutional measures, gender inequality persists in all countries, in different forms:
- Economic activity remains highly gendered: men and women are employed in different sectors with unequal pay and different work conditions. There are still significant pay gaps between men and women doing the same job in virtually all occupations, along with pooling of men and women in different sectors and difficulty in women moving to more senior positions (the 'glass ceiling'), with women, as a proportion of the population, are over-represented in low-paid, insecure and low status positions (ILO, 2012a). Small groups of elite women in some countries now have access to highly paid, high status jobs, but in order to do so are dependent on other women and men in low paid jobs. Women disproportionately work in the informal economy, where laws and regulations for women's rights have no impact. They are also disproportionately represented in agricultural work but have lack of access to land and ownership of assets. These issues are becoming more acute against a general backdrop of increasingly unequal distribution of income and wealth (Perrons, 2014; UN Women, 2015: 45).
- Despite women having the vote in almost all countries, other forms of political representation remain a challenge, with much lower proportions of women taking political leadership or achieving senior political office. Only 1/5 of members of lower or single houses are women; 19% of heads of state or government are women, and 18% of ministers are women, usually

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[2] There have also been numerous reforms at national level, including for example, the 2016 ruling of the Delhi High Court in India that eldest daughters can become the traditional head ('Karta') of a family; or the 2011 changes to the rule of succession to the British throne, overturning male-preference primogeniture.

assigned to social issues. The gender balance of executive boards of private companies is also far from parity[3] (UN Statistics Division, 2015: chapter 5). While in some countries women have better representation at lower levels, for example at village level, there is great difficulty in women translating demands from lower levels to higher levels. It is also important to note the absence of women from decision making in most cultural and social organisations, including major religions[4].

- Health: there are significant gender differences in health trajectories, due to a combination of biological and social factors. Gender colours the global burden of disease and morbidity; for example, in some countries limited reproductive rights means that maternal conditions and HIV/AIDS are the leading causes of death for young women; more than 200 million girls and women alive today have been subject to female genital mutilation (UNICEF, 2016); and rights to abortion unequally distributed and frequently being challenged[5]. Other evidence suggests men experience a higher burden of disease and lower life expectancy than women (Hawkes and Buse, 2013)[6].

- Gender-based violence is a significant issue across the globe, with recent conflicts, instabilities and high levels of migration associated with particularly high levels of sexual and gender-based violence; and social media creating new spaces for sexual harassment (Parkes and Unterhalter, 2015). Around 1/3 of women have experienced physical and / or sexual violence from an intimate partner, or sexual violence by a non-partner, at some point in their lives; and less than 40% of those sought help at any point (UN Statistics Division 2015, chapter 6). Moreover, new forms of harassment associated with social media are emerging.

- Women in all regions do at least two and a half times more unpaid care and domestic work than men, and work longer hours than men if paid and unpaid work is combined (UN Women, 2015: 44). This pattern holds across countries and socio-economic groups, and most countries struggle to provide adequate childcare to support women who want to participate in the labour market.

- Evidence suggests that the impact of the financial crisis, and associated austerity measures, has disproportionately affected women – eroding of social security and welfare in countries where there have been major cuts in public spending leading to heavier care burdens; and women more likely to be in insecure, part time jobs, with limited social benefits, the sectors where some of the economic growth post crisis have taken place (Fukuda-Parr et al, 2013; UN Women, 2014). Gender inequality in wages continues to persist in almost all labour markets (UN Women, 2015: 96-101).

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[3] For instance, among the 43 countries with data, only 3 countries (Norway, Finland and Sweden) have the proportion of seats held by women on executive boards above 25%. The shares of women on corporate boards in 7 out of 15 countries in Asia, mainly Western Asia, are the lowest (below 2%) among countries with available data (UN Statistics Division, 2015: 136).

[4] It is also important to look at the real power dynamics beyond formal representation. For instance, there is a debate around whether women in India elected to local bodies under reservation schemes are genuinely bringing empowerment. See, for example, Teltumbe (2011); Sathe et al (2013).

[5] For example, the controversy surrounding the activities of the Planned Parenthood Federation of America.

[6] Though Hawkes and Buse also point out that this trend may be shifting as women adopt more 'risk' behaviours traditionally associated with masculinity norms.

- While numbers of girls and women at all levels of education have increased under the EFA goals and the MDGs, access to education, and opportunities and freedoms gained through education remain unequally distributed[7].

The persistence of gender inequalities is reflected in the new Sustainable Development agenda that has set a specific goal on gender equality with SDG 5 aiming to 'Achieve gender equality and empower all women and girls'.

Legal rights and access to institutions are a crucial starting point for gender equality, but as the evidence above suggests, they are not sufficient in themselves to undo many of the facets of gender inequality which are evident in the ways in which social interactions reproduce gender inequalities. In order to turn legal rights into *substantive equality* for women, we need economic and social policies to complement legal rights to bring about equality as a lived social relation, that undoes some of the inequalities of the past and puts in place conditions for different kinds of interactions that respect women's rights and support equalities. So, for example, for women to realise guaranteed rights to work, as a first step formal legal barriers to employment would need to be removed. However, in addition, policy measures would need to be put in place, such as adequately funded to ensure good childcare for women who work outside the home. A range of practices in work places would need to be supported, for example addressing sexual harassment, checking pay scales and job grading, reviewing the times of meetings and performance expectations to ensure these did not perpetuate discrimination[8]. Thus a whole range of practices beyond the formal ruling on equal access to work are required to support, the women's ability to participate in work equally.

UN Women (2015: 42) has defined *substantive equality for women* as encompassing 'three interconnected dimensions along which actions need to be taken'; in which women's formal rights need to be supplemented by additional processes to develop real equality:

1. Redressing women's socio-economic disadvantage
2. Addressing stereotyping and violence
3. Strengthening agency, voice and participation

Key to understanding what additional measures are needed in each of these dimensions is recognising how *gender* works as a social construct, rather than as a biological fact. A body of literature has examined and contested how gender is defined, but overall it is crucial to recognise the preconceptions, ideas and identities that shape the lives and circumstances of women and men, the power relations between men and women, and to problematize ideas around femininity and masculinity (Connell, 2009). This allows us to consider how gender operates within institutions; discrimination and inequalities within social institutions[9].

It is also important to recognise that unequal gender relations and gendered preconceptions can also be harmful to men and boys (e.g. suicide rates; fatherhood involvement; boys affected by GBV; particular

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[7] The measurement challenges under the MDGs are discussed in the monitoring section of this report; and the remainder of this chapter focuses on how redressing these gender inequalities in education is central to the SDG agenda.

[8] There is a substantial amount of debate surrounding the gender pay gap. See for example, Ňopo et al (2011), Posel and Casale (2014) and World Bank (2012).

[9] Drawing on a broader definition of inequality based on the concept of capabilities, we can think of gender equality in terms of individuals or groups having equal opportunities to choose and realise the actions, attributes and relationships of wellbeing they have reason to value, without penalties associated with gender (Sen, 1999; Sen, 2011; Robeyns, 2007; Nussbaum, 2011).

health disadvantages such as access to healthcare), and recently there has been increased attention to the significant role of men and boys in working towards gender equality (Edström et al, 2015).

A key issue for implementing the SDGs is how gender intersects with other forms of disadvantage such as poverty, ethnicity or race. Within one country, women or men can have hugely different opportunities; for example, in low income countries, a woman living in a rural area is 38% less likely to give birth with a skilled health professional than her counterpart in the city (UN Women, 2015: 3). While the MDGs focused primarily on low and middle-income countries, the SDGs have a more global focus which acknowledges a more complex distribution of poverty and inequality.

1   **While it is not possible to identify a society that has achieved gender equality today, and it is currently difficult to distinguish specific causal factors behind inequality (Duflo, 2013), we can identify particular contexts where a combination of legal reforms and social policies have contributed to much more equitable conditions. The following section explores how education and achieving substantive gender equality in education can play a role in this.**

Education is only one of the areas of social policy behind the breaking down of gender inequalities and the empowerment of women – progress in education alone is not sufficient for achieving gender equality either in or beyond education, and as this section has covered briefly, other factors such as the legal system, the labour market, welfare systems, culture and religion are crucial in determining the rights and freedoms available to women. Nonetheless, it is a fundamental building block for both individual capabilities, and collective changes in understandings and norms[10].

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[10] Note that due to the lack of more nuanced indicators, correlation analyses so far typically rely on basic measures of access and parity in most cases. It is also important to not automatically attribute causality where there are correlations, as anther underlying factor may be behind improving gender equality in access and other indicators.

II. Gender equality, empowerment and education

Gender is present in the targets for the Sustainable Development Goal on education (SDG 4). Drawing the previous section, we can see that it is important to build on formal education rights to achieve *substantive* equality in education, and section 4.5.3 looks at what this means in more depth. This section looks at how and why such an expanded, substantive approach to gender equality in education is crucial to achieving the sustainable development agenda overall: in the specific gender equality vision of SDG 5, in the other education goals under SDG 4, and in the wider SDG agenda (in particular goal 10).
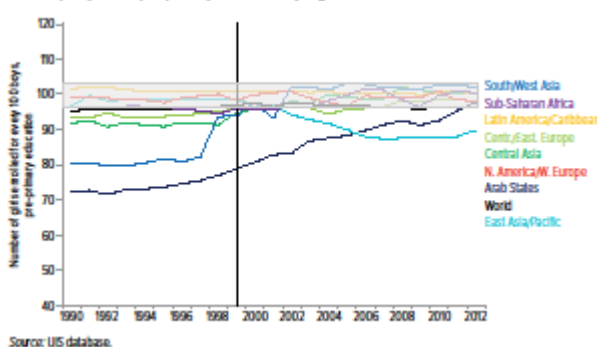
Moving beyond gender parity: substantive gender equality in education underpins SDG5

The targets for Sustainable Development Goal 5, 'Achieve gender equality and empower all women and girls', contain no explicit reference to education. However, none of the targets in SDG5 can be achieved without attention to gender equality in education.

Girls' and women's education was prioritised under the MDGs, and as Figures 1-5 show, in the past few decades there have been substantial overall increases in the numbers of girls and women enrolling in all levels of education.

Figures 1-5: Gender parity has improved at all levels, but disparities remain
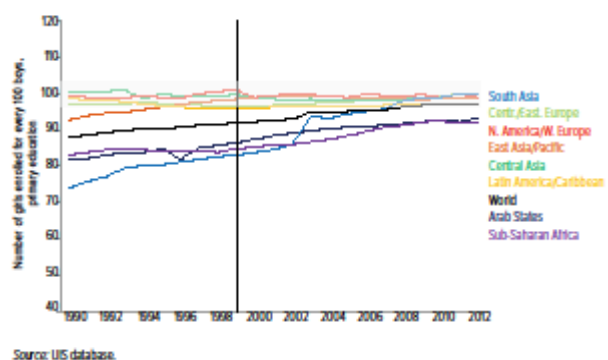
Figure 10: While some regions have shown remarkable progress in reducing gender disparity in secondary education, wide disparities remain
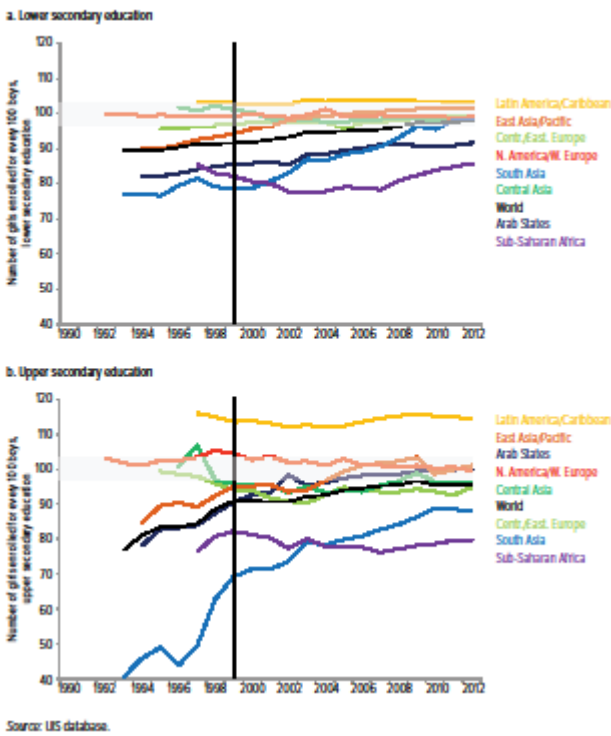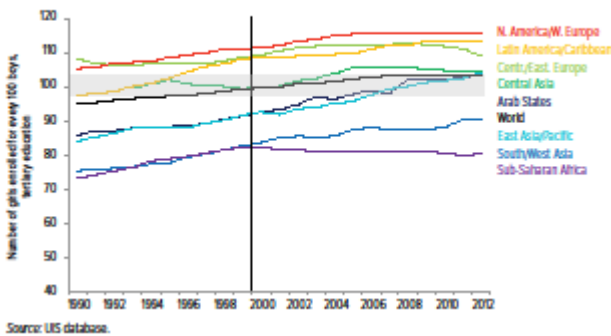Gender parity index, by region, 1990–2012

a. Lower secondary education

b. Upper secondary education

Source: UIS database.

Figure 13: Large disparities remain in tertiary education
Gender parity index, tertiary education, by region, 1990–2012

Source: UIS database.

Yet the way in which gender equality was measured under the MDGs was in terms of *gender parity*, meaning equal numbers of boys and girls enrolling or completing particular levels of education. Access to education is often assumed to be automatically empowering for women, but despite these rising levels, gender inequality in society still persists, and the relationship between education and empowerment is not always straightforward.

- In the USA, there is a strong history of women's inclusion in all levels of education but low political participation, highly segregated labour market, ongoing rights concerns e.g. gender-based violence, significant pay gaps (Goetz, 2003; McBride and Parry, 2011)
- In India, levels of girls' and women's enrolment in all levels of education is rising but female infant ratio has simultaneously dropped, with gender-discriminatory views being a force behind sex-selective abortion and gender-discriminatory child-rearing practices (Patel, 2007).
- Bangladesh has also experienced marked improvements in girls' enrolments, but their experiences are often marked by discrimination and violence in school, family, and community

contexts[11]. Large numbers of women are employed in garment industries, but few progress upwards to become managers and there is little worker representation (Chisamya et al, 2012).

Although accessing and completing education is an important step towards equality, it is crucial that the *processes* and *content* of education are also addressed in order to move towards comprehensive gender equality in society (UNESCO, 2003; UNESCO 2015a). This concept of *substantive* gender equality in education, and issues relating to its measurement, is discussed further in section 4.5.3. Here, this section explores how and when education can contribute to gender equality and women's empowerment in each of the three dimensions outlined by UN Women (2015) discussed above.

1. Redressing women's socio-economic disadvantage through education

While overall numbers of girls in school have been rising, it is the *type* of education that girls and women receive that is key in eliminating women's socio-economic disadvantage.

In the first instance, through imparting core skills such as reading, education facilitates women's access to information about social rights, welfare services, and legal rights. Numeracy and literacy also in some cases remove barriers to women's employment, widening her employment opportunities beyond low-skilled types of work.

However, ensuring greater equality in educational outcomes such as literacy, numeracy, 'soft skills', and entering work-related training or higher education does not translate straightforwardly to greater equality in economic activity, or employment on equal terms with men. The links between women's education and their employment varies by country and region (see Graph 1). For example, in Sri Lanka, significant improvements in female enrolment and completion has not translated into workforce advantages, and instead been accompanied by low and stagnant female labour force participation (Gunewardena, 2015). In the Middle East and North Africa, only tertiary education has a significant effect on labour force participation, whereas in Latin America and the Caribbean, an increase girls' education at all levels has been attributed as a key factor behind a substantial rise in women's involvement in the labour market (ILO, 2012a: 20-21). In Eastern Asia and Southern Asia, between 2000 and 2012, while school enrolments for girls and women increased, the employment rates for women have decreased[12].

As illustrated in Figures 6 and 7, despite increasing levels of female education worldwide, more women than men seem to be entering low paid, insecure jobs, which may have been exacerbated by the financial crisis (ILO, 2012a). Education can lead to increased economic activity but not necessarily improved opportunities and decent quality work. In Ghana, for example, despite increases in women's education and female labour force participation rose, but women's wage employment stagnated. Unemployment for women rose, as did informal economic activity and self-employment, although more years of education increased the chances of securing wage employment (Sackey, 2005).

Figure 6 (from World Bank, 2012): Women have a higher share of informal employment.

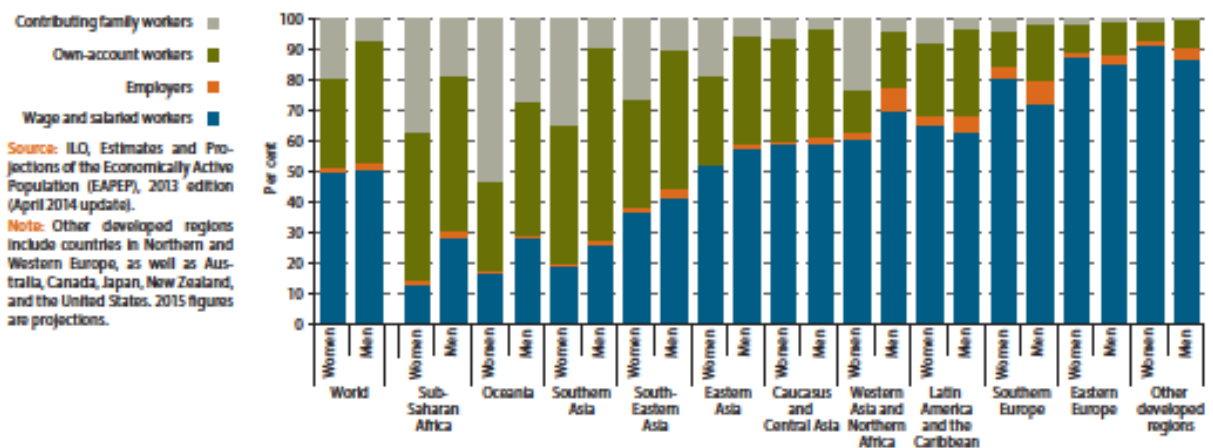[11] Although it is important to note that education can lead to more confidence to report violence.

[12] There have been significant increases in girls' enrolment rates in China and India in this period; yet in both countries, female employment rates have decreased in the same period.

Informal sector employment as a % of total employment

women   men
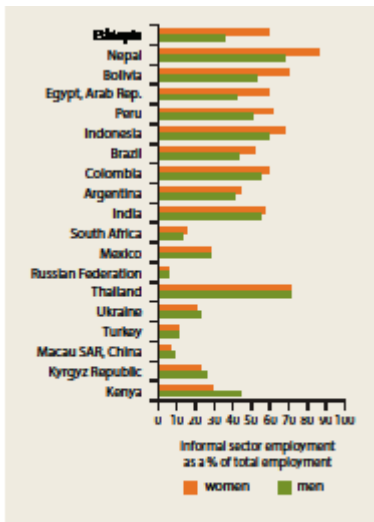
Source: WDR 2012 team estimates based on International Labour Organization 2010.

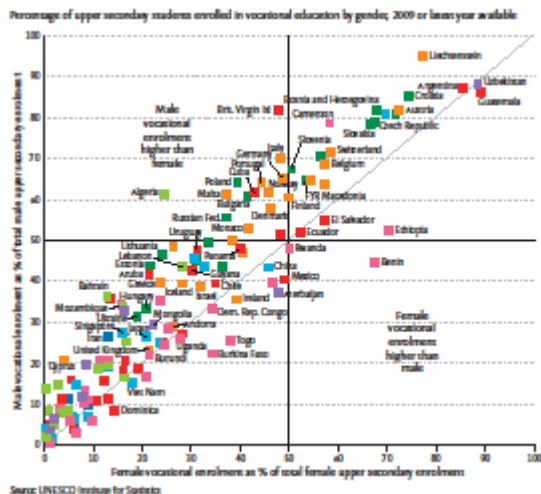Note: Most recent year available between 1999 and 2006.

Figure 7 (UN Statistics Division, 2015: 102); see also figures 4.12, 4.13.

Distribution of employment by status in employment, by sex and region, 2015

Contributing family workers
Own-account workers
Employers
Wage and salaried workers

Source: ILO, Estimates and Projections of the Economically Active Population (EAPEP), 2013 edition (April 2014 update).

Note: Other developed regions include countries in Northern and Western Europe, as well as Australia, Canada, Japan, New Zealand, and the United States. 2015 figures are projections.

Technical and vocational education and training (TVET) can play an important role in helping women transition from school into the labour market, particularly as many poor women miss out on the higher levels of formal education which might expand their livelihood opportunities. In this way, technical and vocational education and training (TVET) can offer a 'second chance'. However, as Figure 8 shows, women remain under-represented in training opportunities; in the majority of developing countries, women are much less likely than men to enrol in TVET, although in several sub-Saharan African countries this pattern is reversed (UNESCO 2012b: 68; Kabeer 2009). Moreover, their access to vocational training institutions has often been in 'traditional' female trades whilst their employment in jobs requiring high levels of skills or knowledge has remained limited, and while some schemes have encouraged participation in male-dominated trades, access to formal skills development in these trades has not automatically translated into female employment. Both the lack of access to TVET, and the segregated nature of courses chosen, reinforces gendered segregation of occupations in the economy (Kabeer, 2009: 13-16). However, recently some schemes have attempted to challenge gendered stereotypes around career options (see Box 1-2).

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Figure 8 (UNESCO, 2012b)

Percentage of upper secondary students enrolled in vocational education by gender; 2009 or latest year available

Source: UNESCO Institute for Statistics

Box 1: TVET reform project, Bangladesh

Women's participation in TVET in Bangladesh ranges from 9 to 13 percent in public institutions and 33 percent in private institutions. Only around one in five instructors within technical institutes is a woman (National Skills Development Council, 2011).

In 2007 the TVET Reform Project was launched in Bangladesh, with the support of the European Commission and implemented by the ILO. It included several measures to address gender equality issues, such as promoting women's inclusion in "non-traditional" courses for better employment opportunities; social marketing and awareness raising; separate washrooms for women; and recruitment of female instructors wherever possible.

An essential platform of the programme was greater access for skills development for women, both in traditional and non-traditional work, which was done in consultation with NGOs. For example, on one of the programmes on motorcycle servicing, one third of the trainees were women. Importantly, the TVET Reform Programme includes a strategy for people with disabilities, where training institutions have been inspected and given recommendations on what to change physically in the environment to make them more accessible for men and women with disabilities. This has made a significant impact on women with disabilities, who before, were often considered by their families as unable to get married and an embarrassment; after the training programme have increased self-confidence, a job, are making money and sending some to the family.

Between 2007-2012 the participation of woman learners and people from disadvantaged groups almost doubled. The successes of the Reform Project led to the development and launch in 2012 of the *National Strategy for the Promotion of Gender Equality in Technical and Vocational Education and Training* by the Government of Bangladesh. This has a number of strategic objectives including breaking gender stereotypes in TVET, achieving a 40% enrolment increase by 2020, and establishing a gender responsive environment with appropriate support systems, and has been supported by the ILO, EC and Government of Canada.

For further information, see:
http://capacity4dev.ec.europa.eu/article/tvet-reform-promotes-social-inclusion-and-skills-bangladesh
http://www.ilo.org/dhaka/Whatwedo/Projects/WCMS_106485/lang--en/index.htm

Box 2: The benefits of education for work are context dependent: Ghana

A recent study in Ghana examined the extent to which education helped women to find work, drawing on a survey of 600 women in different age groups and regions of Ghana and 36 intergenerational life story interviews (Darkwah, 2010).

The study found that education helps where decent work in the public sector is available. This was the case in many parts of Africa a generation ago, but since the 1980s cutbacks in public sector employment came about through structural adjustment programmes.

Education levels had also risen in this time: more than twice as many women aged between 18-29 have had some form of education compared to those above 50. Similarly, younger women were three times more likely to be employed in the formal sector than older women. However, while all the women above 50 who worked in the formal sector worked in public sector jobs which provide more pay, for women aged between 18-29, almost half of these worked in the private informal sector with insecure incomes.

While 94.5 per cent of the women who worked in the public sector were educated, this was true of 62 per cent of those who were self-employed and had employees. Therefore while the education of girls is a key ingredient in producing empowered women, this study also suggested that conventional empowerment initiatives which assumes that providing education for girls is all it takes to produce empowered women are problematic.
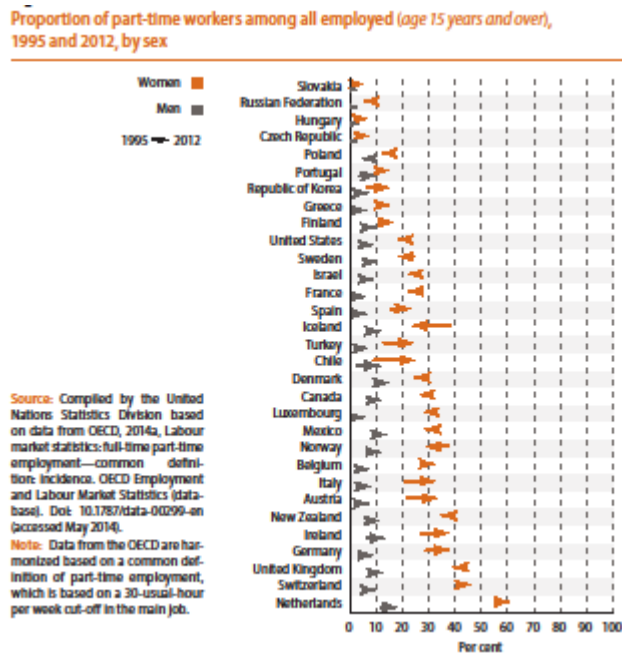
Overall, context is key in determining whether or not an educated girl will grow up to become an empowered woman; education, in and of itself is not good enough. If governments only provide universal primary education without also paying attention to the provision of jobs with decent pay and working conditions, then this ultimately hinders educated women's efforts at gaining control over financial resources. Educational reforms must be matched with better access to public sector jobs or laws that ensure that private formal and informal sector jobs provide decent work.

For further information see:
http://www.pathwaysofempowerment.org/archive_resources/education-pathway-to-empowerment-for-ghanaian-women

A number of other factors mediate the relationship between school-level education and female labour force participation rates. One is higher education: while some countries have seen low or even falling female labour force participation rates, in some instances this has been attributed to more young women continuing on to higher and further education. For example in India, low labour force participation rates for the 15-24 age group is likely to be due to rising numbers of girls and young women in education (Bhalla and Kaur, 2012). Women's entry into the labour market is also influenced by factors such as wages and types of job available; access to resources such as land or credit; and bias in markets and institutions (World Bank, 2012; ILO, 2016). Further, rising levels of women's education are not automatically resulting in a more equal balance of domestic and unpaid care work (World Bank, 2012; UN Women, 2015: 83-89). Women are also more likely to be in part-time employment (Figure 9).

Figure 9: from UN Statistics Division (2015: 106)

Proportion of part-time workers among all employed *(age 15 years and over),* **1995 and 2012, by sex**

Women ■
Men ■
1995 → 2012

Slovakia, Russian Federation, Hungary, Czech Republic, Poland, Portugal, Republic of Korea, Greece, Finland, United States, Sweden, Israel, France, Spain, Iceland, Turkey, Chile, Denmark, Canada, Luxembourg, Mexico, Norway, Belgium, Italy, Austria, New Zealand, Ireland, Germany, United Kingdom, Switzerland, Netherlands

0 10 20 30 40 50 60 70 80 90 100
Per cent

Source: Compiled by the United Nations Statistics Division based on data from OECD, 2014a, Labour market statistics: full-time part-time employment—common definition: incidence. OECD Employment and Labour Market Statistics (database). DOI: 10.1787/data-00299-en (accessed May 2014).
Note: Data from the OECD are harmonized based on a common definition of part-time employment, which is based on a 30-usual-hour per week cut-off in the main job.

Traditionally defined gender roles and cultural norms play a role in many of these factors, and are therefore a significant part of the reason why progress in school enrolments has not been matched by progress in the labour market. As the next section explores, rather than just increasing numbers in school, examining norms and stereotypes present in curricular content and school processes is crucial for addressing stereotyping and the persistence of gendered divisions in the labour market, and domestic and care work.

Another dimension of socio-economic disadvantage is health. Literacy and numeracy can improve women's ability to engage with health information and healthcare systems, and increase choices over healthy lifestyles and diet, and higher levels of education has also been linked to reduced susceptibility to disease. There is evidence, for example, that there is a higher incidence of maternal mortality among poorly educated mothers in countries where there is a higher level of gender inequality (UNESCO, 2012: 53). Conversely, increasing levels of women's education can have a positive effect on health; for example, a recent study in Ghana revealed a strong association between the years of education a women has are strongly associated with her health knowledge, and her use of health services (Greenaway et al, 2012). Similarly, for women to exercise their reproductive rights, it is essential that they have access to comprehensive education about sexuality, contraception and reproductive health.

However, even in contexts where there are high levels of gender parity in education, behaviours relating to health and mortality can be highly gendered – for example, in a number of countries, men have been shown to be more at risk of poor mental health and suicide, violence and homicide (as both victims and perpetrators) – meaning that education must also address norms around masculinities, femininities and health (Barker, 2005; Hawkes and Buse, 2013). For example, in Brazil rates of violence and violent death are particularly high for young men, particularly in urban areas, where lack of education and employment opportunities may lead boys and young men to adopt risky lifestyles associated with gangs and work in the drugs trade (Imbusch et al, 2011).

2. Addressing stereotyping and violence through education

Education can reinforce gendered stereotypes, but it is also a place in which they can be challenged.

Norms and dominant ideas about appropriate roles and activities for men and women can be reflected in school curricula and learning materials, and in differential treatment of teachers towards girls and boys. In this way, education systems can perpetuate or reproduce existing gender stereotypes (see for example, Durrani, 2008; Stromquist, 2006). Such stereotypes in education may be an important factor behind continued segregation in the labour market. As mentioned in the previous section, although rising numbers of girls are completing secondary education and passing exams, this has not led to the elimination of 'horizontal' segregation in the labour market, and there is a tendency of men and women to pool in different sectors of employment, often with different levels of status, remuneration and security. According to the ILO, horizontal segregation was decreasing until the 1990s, but since then it has been rising again (ILO, 2012a: 24-25; ILO, 2016: 25-26)[13]. Education plays a role in such trajectories; for example, in OECD countries, where gender parity in education has been achieved for several decades, 14% of young women entering higher education for the first time in 2012 chose science-related fields of study, compared to 39% of young men; moreover, girls are much less likely to consider a career in computing or engineering, and much more likely to consider working in health services (OECD, 2015: 113-115).

Rising levels of women's education has also not seemed to have an impact on the pattern of unpaid domestic and care work, with women performing a disproportionate share, leaving them less time, energy and access to resources such as education, food and healthcare. For example, a study by Chisamya et al (2012), examining rising school enrolments for girls in Malawi and Bangladesh, revealed no impact on the imbalance of girls' and boys' domestic work.

However, school lessons that include critical reflection on norms around masculine and feminine roles can help to break down such stereotypes. For example, targeted initiatives can challenge gender stereotypes in relation to particular school subjects like science and maths (see Box 3). Also, school programmes that support students in examining their perceptions about gender can lead to a more equitable of domestic labour. For example, one study of a transformative secondary education programme in Honduras explored the consequences of a learning environment in which tutors, texts and students were arranged to include critical reflection and dialogue on gender, and how inequalities are enacted in the community. Raising consciousness of gender equality, and developing participants 'relational resources' - the interpersonal skills they use in relationships, meant that women were able to negotiate a new sharing of responsibilities within the home (Murphy-Graham, 2009).

Even with a gender-equal, empowering education, women will still encounter gendered structures on entering the labour market; yet education can also give women the tools to negotiate these structures and challenge traditional gender roles to greater effect. Importantly, gendered stereotypes in turn also affect girls' educational opportunities, for example, through parental aspirations and expectations over domestic work, or through differential treatment at school.

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[13] Some interesting trends to consider include gendered roles for professional middle classes, and around technological developments, in recent employment data. See ILO (2016).

Box 3: Initiatives for girls and women in STEM subjects

In the last few decades, many national-level initiatives have sought to encourage girls and women to take up science, technology, engineering and maths (STEM) subjects. The 'Women in Science and Engineering' campaign in the UK, which has included engineering apprenticeship schemes working with target schools, scholarships for women studying engineering subjects, workshops about careers in construction and engineering for young women aged 15-22, and resources for teachers of STEM subjects in schools[1]. Another example is 'Girls Who Code', a US-based organisation working to encourage girls to pursue computer science-related careers. In 1984, 37% of computer science graduates in the US were women, but today that number has fallen to 18%. Their activities include summer schools embedded in technology companies, and a school clubs programme for girls in secondary school[1].

Organisations which aim to address this issue at the global level include the *Organisation for Women in Science in the Developing World* (http://owsd.net/) and *Women in Global Science and Technology* (http://www.wisat.org/). A recent study jointly conducted by these organisations concluded that women remain severely under-represented in engineering, physics and computer science — less than 30% in most countries – while the numbers of women working in these fields are also declining (WISAT, 2012).

The report found that policies can make a difference, but that there needs to be a multidimensional policy approach – 'Getting women into science' policies are not enough by themselves. The approach should include supporting women's ability to fulfil their educational and professional aspirations, providing flexible education and training opportunities, and reinforcing their ability to make choices and decisions about their lives; and these measures should be accompanied by social and health support such as childcare, flexible work and access to healthcare. So for example, while India has an enabling policy environment, low levels of women's health and social status hold the back; in the same way, the success of women in Science in South Africa is limited to a narrow group due to the low economic and health status of most women.

A recent project set up by UNESCO Institute for Statistics will develop new indicators to help bridge the gender gap in STEM. The idea is to highlight dynamics that shape women's decisions to pursue STEM careers.
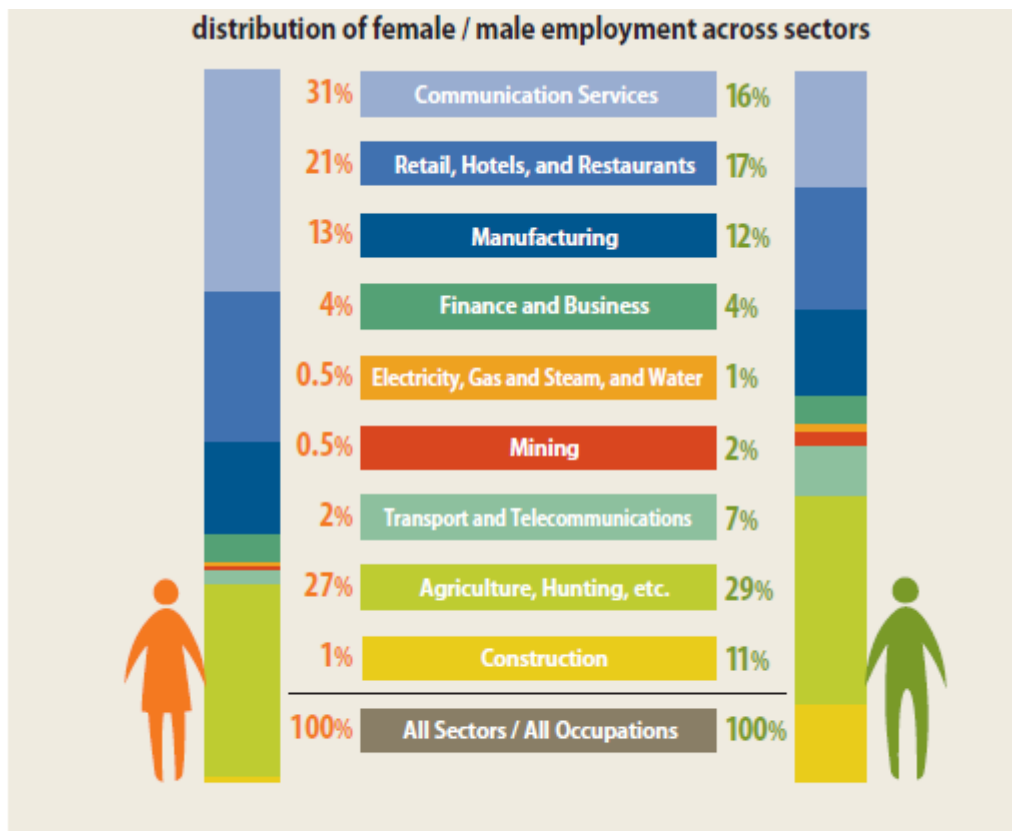
For more information see:

http://www.uis.unesco.org/ScienceTechnology/Pages/saga-launch.aspx

http://www.scidev.net/global/innovation/opinion/the-right-policies-can-fill-the-gender-gap-in-science.html

Moreover, it is important that educational initiatives to address stereotypes involve boys as well as girls, in order to transform predominant norms (Walton, 2013; Action Aid, 2013; Edstrom et al, 2015: 54-67). For example, Instituto Promundo in Brazil aims to engage men and boys to promote gender equality and end violence against women. While their programmes engage with adults of all ages, one strand of their work is in schools, through the development of their materials 'Program H/M'. This has

now been rolled out to a number of different countries and recently, UNICEF, UN Women, WHO/PAHO, UNDP and the World Bank have named Program H/M as a best practice in promoting gender equality.

Figure: from World Bank (2012: 16).

distribution of female / male employment across sectors

Female	Sector	Male
31%	Communication Services	16%
21%	Retail, Hotels, and Restaurants	17%
13%	Manufacturing	12%
4%	Finance and Business	4%
0.5%	Electricity, Gas and Steam, and Water	1%
0.5%	Mining	2%
2%	Transport and Telecommunications	7%
27%	Agriculture, Hunting, etc.	29%
1%	Construction	11%
100%	All Sectors / All Occupations	100%

Source: WDR 2012 team estimates based on International Labour Organization 2010 (77 countries).
Note: Totals do not necessarily add due to rounding.

A growing body of research has shown school-related gender-based violence to be a widespread and pervasive problem, which undermines gender equality in education (UNESCO, 2015b: 179-181). For example, a survey carried out by ICRW in India found that violence is an integral part of the schooling experiences of young adolescents, especially boys (Achyut et al., 2011). The study found that two-thirds of boys ages 12-14 in a cluster of low-income schools had experienced at least one form of violence in the last three months at school. Physical violence and emotional violence were common, affecting 61% and 49% of boys, respectively. Although fewer girls than boys reported experiencing any form of violence (42%), the rates for physical and emotional violence were still high (38% and 26%, respectively). Studies have revealed similar figures in other countries across the globe (Barker et al, 2012).

Education can be central to preventing and addressing violence, and has the potential to encourage students to question existing gendered behaviours, through reflective tasks, questioning and critical thinking. For example, two South African studies supported teaching of critical literacy to raise children's awareness about gender inequality and violence through learning materials and texts which focused on addressing sexist advertising material (Ralfe 2009) or stories about violence (Balfour 2003). Another example is the Community Empowerment Programmes run by the organisation Tostan, in

which women and men are encouraged to discuss human rights together and to develop new social norms around equality for men and women[14]. Similarly, the 'Gender Equity Movement in Schools' (GEMS) programme promotes gender equality in schools by encouraging equal relationships between girls and boys, examining the social norms that define men's and women's roles, and questioning the use of violence. The pilot phase in Mumbai involved extracurricular activities, role-playing and games in 45 schools with girls and boys aged 12-14, and has subsequently been adapted in Maharashtra state and in DaNang province, Vietnam (Achyut et al, 2011)[15].

However, schools can be a site for behaviours that also reinforce existing norms and behaviours that sanction gender-based violence. For example, girls may be subject to verbal and physical sexual harassment by male students or teachers; and bullying in schools is often directed at children perceived as transgressing norms of masculinity or femininity (Parkes, 2015). Corporal punishment may be used to enforce such norms – to 'toughen' boys, for instance, or to teach girls to be submissive (Morrow and Singh, 2015; Nandita et al, 2014). This issue is increasingly pressing in a world in which insecurity and violent conflict has sadly become more commonplace, both locally and internationally.

Gender-based violence can continue even where there are high levels of education. For example, while the Indian state of Kerala has a high level of women's education and literacy, rates of domestic violence and dowry-related crimes have been increasing, and women's levels of mental ill-health have been rising; changes in marriage, inheritance and succession practices have weakened women's access to and control over inherited resources (Eapen and Kodoth, 2003)[16].

What is also important is the value of education in providing girls with confidence, insights and networks to challenge gender inequitable norms and power balances which are associated with violence. ActionAid's project to Stop Violence Against Girls in School in Kenya, Ghana and Mozambique included a number of school-based interventions including girls' and boys' clubs, affecting knowledge, confidence, attitudes and practices in managing violence and inequality; and training for training for school staff on gender and violence, influencing school management and classroom processes, strengthening pupil participation and gender equality. By the end of the five year project, researchers found little change overall in levels of violence, but that girls were more likely to report experiences of violence to someone. It is likely that girls' increased confidence to speak out may be masking possible reductions in the amount of violence taking place (Parkes and Heslop 2013).

Gender may intersect with other forms of difference or disadvantage and result in stigmatisation. For example, girls and boys may be stigmatised, excluded and denigrated in schools when they are perceived as flouting norms about gender and sexuality (Youdell 2005; Dunne 2007). Interventions in schools have addressed homophobic bullying in schools by combining interactive teaching with young people reflecting on their own values, beliefs and stereotypes, with whole school approaches that strengthen school systems and teacher interventions to tackle and prevent bullying (Mitchell et al 2014).

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[14] For more information, see http://www.tostan.org/empowerment-women-and-girls.

[15] For further information see: http://www.icrw.org/where-we-work/gender-equity-movement-schools-gems.

[16] Although it is important to note that higher levels of education may also encourage a higher level of reporting violence.

3. Strengthening agency, voice and participation through education

Literacy and numeracy can have an empowering effect. Learning to read and write can bring greater confidence and agency to identify and challenge inequalities, unjust traditions, norms and practices that perpetuate women's low status. However, learning to read and write are more likely to have an empowering effect if the content and processes within the school are also focused on increasing gender equitable agency, voice and participation.

As explored in the section above, the potential for education to contribute to changing stereotypes around domestic roles in the home rests on the messages imparted about gender as part of learning processes. Similarly, women's agency, decision-making and ability to negotiate within the household is not automatically increased when girls and women have more access to education, but if the content includes an empowering and transformatory approach then it is more likely to do so. It can pave the way to explore options, and thus make strategic choices for changing not only the allocation of care tasks but also their decision-making capacity in families. For example, Marphatia and Moussié (2013) used time-use data to show how an adult literacy programme with a participatory and social empowerment approach increased recognition and achieved a more equitable redistribution of women's unpaid care work in rural Nepal, as well as making them more active agents in public spaces.

Education can have an effect on a woman's political participation and engagement through imparting skills which enable her to participate in democratic processes. Literacy, and the critical reflection skills that a good quality education should provide, are necessary tools for engaging in democracy: reading, understanding and critiquing campaign literature, debating and reflecting on choices, and voting. Educated women are more likely to participate in civic life and to advocate for community improvements; and numeracy enables individuals to question and critique government figures, strengthening processes of accountability. For example, educated women in Bangladesh have been shown to be three times more likely to participate in political meetings than are illiterate women (UNESCO, 2000). In India, a study used census and election data to test the relationship between gender inequality in education and male and female voter turnout and candidacy levels (Gleason, 2001). Controlling for caste, religion, economic and political factors, and various aspects of gender inequality in the district, the study showed a positive relationship between a woman's education, and both her likelihood of voting, and of running for office.

However, there is no straightforward link between higher levels of women's education and greater political participation, and at country level there is wide variation in the relationship between women's education levels and their representation in formal politics. One example is Kerala, where despite high levels of female education, a 'gender paradox' has been noted, where women enjoy a relatively high social status but there is a weak autonomous women's movement and low numbers of women serving in political office (Kumar, 1994; Eapen and Kodoth, 2003). Malaysia has seen increasing female enrolment, particularly in tertiary education, but women's political participation has remained steady in the last 10 years (Salleh, 2010; World Bank, 2015). Some countries with historically high levels of girls' and women's education, such as the USA and the UK, also have lower numbers of women in senior political posts than some countries with fewer girls in school. Other countries historically have high levels of women's participation in education and politics, such as Canada, Australia and Sweden. Where women reach higher levels, they are often responsible for social, education and health portfolios – in 2010, they were twice as likely to hold a social portfolio than an economic one (World Bank, 2012: 177).

Finally, substantive equality in education supports organising around women's rights, by encouraging critical reflection on gender inequalities, building confidence to speak out about injustice and helping to foster social and political empowerment. At the same time, women's organising is needed for progress in education; recent studies have demonstrated the important role of women's activists in holding governments to account to national and international commitments, and pressing for policy changes for gender equality (Weldon and Htun, 2013; Cornwall and Edwards, 2015; see also recent project by UNRISD). Under the SDGs, this will be especially important at the global level, as increasing levels of transnational activity and globalisation offer both new challenges to gender equality, but also unprecedented opportunity for communication and collaboration (Ferree and Tripp, 2006; Stromquist, 2000; Peppin Vaughan, 2015). While there have been dynamic transnational movements around other women's rights issues, such as health and gender-based violence, there has so far been less coordinated action on *substantive* gender equality in education, and this must be a priority under the new agenda (Unterhalter, 2016). Greater involvement and coordination at the global level would both support national reforms and progress on gender equality in education, and also foster critical engagement with the SDG agenda.

Gender equality in education must be reached for the other SDG education targets to be met

The other education targets that make up SDG4 cannot be achieved without substantive gender equality in education, and the attention to processes, outcomes and contexts which it entails. First, the equal access to primary, secondary, pre-primary and technical and vocational education detailed in 4.1-4.3 must involve inclusive processes so that all groups of girls and women can participate on equal terms to boys and men, as should 4.4 on skills for employment and 4.6 on adult literacy and numeracy. Second, education must contribute to outcomes and opportunities for men and women equally, bringing the same freedoms and opportunities without penalties relating to gender.

Target 4.7 specifically positions knowledge and skills relating to gender equality as part of sustainable development. 4c's aim to increase the supply of qualified teachers will also depend on training female teachers and the achievement of labour market equality for women entering the profession.

Gender equality in education underpins other SDGs

Gender equality in education is also integral for both SDG 1 (end poverty) and SDG 10 (reduce inequality). First, gender equality is by definition part of both SDG 1 and SDG 10. If a traditional, resource-based understanding of poverty is adopted, then women must have equal opportunities to escape poverty, including educational opportunities. If poverty is defined as lack of capabilities, then we must eliminate gender inequalities in capabilities, including educational capabilities. The most recent data reveals that the shape and distribution of gender inequality in education is changing. A significant proportion of poor women now live in middle-income countries and have very limited educational opportunities, because of living in remote and deprived rural areas and lack of family resources, whereas simultaneously in the same country, women from high income groups may have better educational prospects than men. In this way, gender alone is not the most important factor affecting the likelihood of being educated, but how it combines with other factors to limit girls' and women's opportunities. In relation to gender inequalities in all aspects of education (access, processes, and trajectories after schooling) we need to be aware of how gender compounds other lines of disadvantage: socio-economic status; ethnic group; geographic location; religion; sexuality; disability; age; race (Kabeer, 2015). For example, the UN has recently identified that poverty and location are the factors

most likely to determine whether girls participate in school (UN Women, 2014). In Latin America, rates of illiteracy among indigenous women are often more than double those of non-indigenous women (ILO, 2012b: 10). In Ghana since 2000 there seems to have been great progress on gender and education: the primary net enrolment rate (NER) in 1999 was 67% and in 2010 was 84%; the GPI was 0.97 in 1999 and was 1.01 in 2010. However, 16% of girls aged 17–22 in 2008 have less than two years of schooling and 20% have less than four years, compared with 9% of boys with less than two years of schooling and 12% with less than four years (Unterhalter, 2014: 181). At a different level, educated women in professional middle classes seem to be becoming more segregated in labour market sectors and continue to be responsible for domestic tasks. As the potentially empowering effects of education are unequally distributed, this requires attention to how poverty and marginalisation affects some women's access to education, and the ways in which education can reproduce or challenge gender inequalities.

Second, a body of evidence also suggests that resolving gender inequalities – both in education, and overall – is important for improving other human and social development indicators (e.g. Aguirre et al, 2012); for economic growth (e.g. Klasen, 1999; Klasen and Namanna, 2009; Amin et al, 2015) and for macroeconomic stability (e.g. Steinberg and Nakane, 2012). Moreover, according to a recent report by the IMF, gender disparities in education and health are the key drivers of overall (i.e. non-gender specific) income inequality, rather than just getting more women into paid work (IMF, 2015).

The importance of integrated interventions

Initiatives to address gender equality in education are unlikely work in isolation, as many of the examples in this chapter have demonstrated.

First, initiatives to achieve substantive gender equality within education cannot succeed without attention to gender in wider society; for example, initiatives to encourage girls to choose STEM subjects will be more effective if there is a broader enabling environment in terms of gender (e.g. WISAT, 2012).

Second, progress in education alone is not adequate for gender equality; the wider context will determine how education reforms are received and how effective they can be, and additional supportive policies are needed for education reforms to have an impact. For example, additional social policies are needed to help women move from school into decent forms of employment (Darkwah, 2010). There are a number of community based projects with integrated interventions that have demonstrated positive impacts in shifting inequitable gender relations. For example, in South Africa, *Stepping Stones* involved young men and women in a combined gender empowerment, sexual health and economic empowerment intervention, and demonstrated positive results in increases in women's and men's earnings, reductions in intimate partner violence, and more equitable gender attitudes (Jewkes et al 2014).

The broader policy context will determine whether and how integrated approaches are employed. Gender mainstreaming has been a popular policy approach to addressing gender equality concerns across a broad range of sectors, aiming to be more effective than isolated efforts in different sectors. Unterhalter and North (2010) draw attention to the different ways in which this has been implemented in education; sometimes as a limited technical exercise, essentially side-streaming women's concerns; at other points offering real opportunities to bring about gendered change in education, and with the effects for gender equality depending on how mainstreaming is received, interpretation and negotiated at local levels (Unterhalter and North, 2010). Some evidence suggests however that cross-cutting interventions may still mostly benefit women in higher socio-economic groups (Blofield and Haas,

2013). Many authors argue that to achieve policy reforms in multiple dimensions, the support of the women's movement is essential to activate change and hold governments and other providers to account, particularly for more marginalised and vulnerable groups in society (Sen and Mukuherjee, 2014; UNRISD; other refs to add).

Moving forwards

For SDG 5, *substantive* gender equality in education, rather than just parity, is crucial. It can give women the skills to overcome socio-economic disadvantage, stereotyping and violence; and foster agency, voice and participation. But access to education alone is not always empowering for women; this is mediated by the content of education, and the processes through which it is delivered. One of the most important steps to take in the new SDG agenda is to improve our measurement of these content and processes, not only for tracing progress but also so that we can better understand the relationship between education and substantive gender equality in wider society. These issues are taken up and explored further in the final section of this paper.

III. Measuring gender equality in education

Under the SDGs there are renewed efforts to bring together data to measure gender equality (UN Women, 2015). This section first outlines the trends in current measurements for gender parity in education, and considers the limitations of this approach. It then goes on to explore possible advances beyond parity in measurement methodologies for gender and education at the global level, and how the SDGs offer new opportunities to expand and improve these.

Gender parity and participation

SDG 4.5
By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations

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Gender parity in education: access, attendance and achievement

Achieving gender parity in access to education was a prominent concern in the MDGs and EFA, particularly in low-income contexts. Historically, in a number of countries, girls and women have experienced persistently lower levels of enrolment, attendance, and completion, with certain groups (particular poorer girls from rural areas) more vulnerable to marginalisation.

The last 15 years has seen progress in terms of gender parity. Between 2000 and 2015, the number of girls for every 100 boys enrolled has risen from 92 to 97 in primary education, and from 91 to 97 in secondary education. The number of countries that have achieved gender parity in both primary and secondary education in the same period has increased from 36 to 62, with particular progress in South and West Asia, although no countries in sub-Saharan Africa have yet achieved that goal (UNESCO, 2015). It is also important to note, however, that aggregate increases do not always mean improvements for all children; and in all countries, the poorest girls remain the least likely to enrol in school.

Improving access is a crucial first step towards realising gender equality in education, particularly as this realises an intrinsic right to education for all children. Persistent barriers that particularly affect girls enrolling in and attending school are: household poverty, domestic work and parental preferences; early marriage and adolescent pregnancy; and school-related gender-based violence. Measures that can improve access include reducing the costs of schooling, improving and expanding school infrastructure, recruiting female teachers, gender-sensitive classroom practices and addressing gender-based violence (UNESCO, 2015a).

Some studies have examined the effects of large numbers of girls enrolling in school, noting a range of benefits including economic growth, reduced fertility rates, and the development of 'non-cognitive' skills (Klasen and Namanna, 2009; McCrary and Royer, 2011; Potts and Marks, 2001; Heckman and Rubinstein, 2001).

Where attendance and progression data exists, it shows that when girls do enrol at the primary and secondary level, they are equally if not more likely than boys to continue to the upper grades. Gender disparity in the numbers entering and completing lower secondary schooling has narrowed; and at

upper secondary level, boy are more likely than girls to drop out, particularly in OECD countries. In terms of learning outcomes, however, there are gender gaps in performance across subject and different stages of the education cycle. PISA data shows girls generally perform higher in reading and boys higher in mathematics; and in poorer countries girls face a disadvantage in achievement (OECD, 2015). For example, SACMEQ data shows girls perform worse in national examinations than boys in a number of African countries, including Kenya and Zimbabwe (UNESCO, 2015). Finally, more women than men enrol in tertiary education except from two regions, sub-Saharan Africa South and West Asia; and high levels of gender disparity in adult literacy remain, with women at a disadvantage.

Measuring gender parity

Gender parity – reaching the same proportions of girls and boys for a given indicator - was foregrounded under the MDG and EFA campaigns. Gender parity has nearly been achieved in access to pre-primary education; there has been major progress in access to primary education but more is needed. Gender disparity is wider and more varied in secondary education, and in most regions there are more women than men in tertiary education. Gender parity in learning outcomes is yet to be achieved, with girls at a greater disadvantage in poorer contexts (UNESCO, 2015)[17]. Under the SDGs, due to improvements in data availability, the next set of gender parity indicators will extend to include measures of participation and attendance.

If parity scores improve, this can indicate that the distribution of educational resources and opportunities are becoming more equal between boys and girls[18]. However, parity measures give little information about the gendered nature of educational processes (such as classroom processes, teacher behaviour, and curricular content), norms and stereotypes within institutions that can help reproduce inequalities, and the experiences of learners during and after education. As they have been used so far, they also give little indication of the distribution of educational resources and opportunities within groups (for example, between different groups of girls), and the institutional processes and investments in schooling which will develop, support and sustain gender equality.

There are a number of ways in which existing gender parity data could be used to give a more nuanced picture of girls' and women's educational opportunities. For example, an inequality modifier could be employed to make it easier to identify countries with large regional, class or ethnic inequalities that intersect with gender inequalities, which would pave the way to more detailed analysis at the subnational level[19]. Another possibility would be to work with the OECD's Social Institutions and Gender Index (SIGI), to capture the role of institutions in sustaining or transforming gender inequalities in education. The SIGI index could be expanded to include a measure of gender inequality in education; moreover, existing gender parity indicators could be used alongside the existing SIGI scores to shed light on the relationship between gendered institutions outside of education, and gender inequality in schools.

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[17] Here, the disparity in learning outcomes are measured through regional and international learning assessments such as PISA, TIMSS, and SACMEQ.

[18] Note however that achieving parity might also indicate that proportions of boys have decreased to match a lower proportion of girls.

[19] An example of such a modifier is the Inequality-adjusted Human Development Index (IHDI) used by UNDP since 2010, which applies the Atkinson inequality measure to the HDI component variables: life expectancy, education and income. For more information see: http://hdr.undp.org/en/content/inequality-adjusted-human-development-index-ihdi

Beyond parity: measuring substantive gender equality in education

However, narrowing gender gaps in schooling, whether in terms of access, attendance, or achievement, doesn't automatically lead to gender equality. This is a common point across high and low income countries:

- Education can lead to increased economic activity but not necessarily improved opportunities and decent quality work. In Ghana, for example, despite increases in women's education and female labour force participation rose, but women's wage employment stagnated. Unemployment for women rose, as did informal economic activity and self-employment, although more years of education increased the chances of securing wage employment (Sackey, 2005).
- Malaysia has seen increasing female enrolment, particularly in tertiary education, but women's political participation and labour force participation has remained steady in the last 10 years (Salleh, 2010; World Bank, 2015)
- In the USA, there is a strong history of women's inclusion in all levels of education but low political participation, highly segregated labour market, ongoing rights concerns e.g. gender-based violence, significant pay gaps (Goetz, 2003; McBride and Parry, 2011)
- In India, levels of girls' and women's enrolment in all levels of education is rising but female infant ratio has simultaneously dropped, with gender-discriminatory views being a force behind sex-selective abortion and gender-discriminatory child-rearing practices (Patel, 2007).
- Bangladesh has also experienced marked improvements in girls' enrolments, but their experiences are often marked by discrimination and violence in school, family, and community contexts[20]. Large numbers of women are employed in garment industries, but few progress upwards to become managers and there is little worker representation (Chisamya et al, 2012).

Substantive gender equality in education

While access and parity levels improved under the MDGs, the achievement of gender equality in education in a *substantive* sense remains to be achieved in all countries. Although access to education might rise, there are ways in which schools as gendered institutions, can reproduce existing gender inequalities rather than challenge them (Murphy-Graham, 2009; Gilbert and Gilbert, 1998). This can be through teacher behaviour, expectations and interactions with students; peer group norms; the formal curriculum (including whether gender is explicitly addressed or not) and through how the school itself is structurally organised and managed. In addition to attending and completing education, therefore, education for gender equality entails building knowledge, attitudes and transferable skills to support girls' agency and empowerment, fostering reflection on existing norms and traditions, and encouraging students to challenge them, addressing discrimination and gender-based violence, supporting healthy life choices, including sexual and reproductive health, and promoting gender equality. Interventions proposed include teacher training, curriculum reform and working to increase critical reflection on gender norms amongst students and staff[21].

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[20] Although it is important to note that education can lead to more confidence to report violence.

[21] This section, and the earlier discussion of substantive gender equality in the first half of the paper, draws on the capability approach in thinking about gender equality in education. From this perspective, it can be argued that the aim should be to measure how education opens up people's opportunities and freedoms, rather than looking only for specific achievements and outcomes. For further discussion, see Sen (1999), Nussbaum (2011) and Robeyns (2007) and specifically on capabilities, gender and education see Unterhalter (2007) and Peppin Vaughan (2016, forthcoming).

To monitor these processes, structural and institutional factors, and outcomes of education, there is a pressing need to develop more nuanced indicators that capture such aspects of education that indicate progress towards *substantive* gender equality in and through education. If policymakers have more multidimensional information about where inequalities are located, it is easier to identify where change is needed.

Unterhalter (2015) outlines 7 areas of policy and practice which are key for gender equality in education: institutions outside of, and within the education system; teaching and learning practice; resources; norms; demographics; and outcomes of education (see appendix for more information).

Monitoring the concept of substantive gender equality in education: existing measures

The indicators proposed so far (UN ECOSOC, 2016) represent some improvement on parity of access that was foregrounded under the MDGs, as they monitor some outcomes in terms of proficiency levels and skills.

However, additional information is needed to monitor the concept of substantive gender equality in education, which captures the any gender biases in institutions and educational processes. The table below suggests indicators which could be used to track these in each of the 7 domains, using data which is already available and globally comparable. Some of the indicators are not an absolute fit for the concept, but can be used as proxies (for example, early marriage and motherhood give an indication of norms around gender equality in education).

Table 1: Indicators currently being measured

Key domain	Indicators currently being measured but not yet used in monitoring	Availability, potential sources
Institutions outside education	▪ Legislation to forbid gender-based discrimination	Widely available e.g. OECD SIGI
Institutions of the education system	▪ Policy commitments in national constitutions, legislation or specific policies, to guarantee girls' and women education	Available but needs to be manually compiled. CEDAW, or country reports to Right to Education.
Teaching and learning practice	▪ Data on teacher & students gendered attitudes and interactions. Unevenly documented at country level.	Some data from PISA and SACMEQ
Resource distribution to and within schools and education programmes	▪ Gender budgeting & scrutiny of finances; in gender equality in teacher pay and conditions, schools, adequately trained teachers, learning materials, water, transport, food, secure long term finance.	Resources available for schooling for different groups of children
Norms	▪ % of the population married between the age of 15 and	UNICEF databases;

	19; ▪ Early/adolescent pregnancies o Age-specific fertility rate (births per 1,000 women) by age group (15-19); o % of girls between age 15 and 19 getting pregnant;	DHS surveys
Demographics	▪ enrolment, progression and completion figures (as in EDI) by gender, with additional dimensions provided by WIDE	UNESCO WIDE
Outcomes of education	▪ Women' autonomy in the household and empowerment o Outside mobility; o Acceptance of violence in households; o Decision-making on children health; o family planning: % of women (15-49) who make their own sexual and reproductive decisions; o Household expenditure	DHS surveys

Indicators not being measured or defined: developing new measures

Currently, internationally comparable data is not available on gender aspects of teacher training, curriculum content, pedagogic practice, or gender violence in schools. It is also important to have better collection of data linking school experiences to aspects of SDG5 (for example in the labour market, or health, or political participation), to better understand the significance of gender equality in education. The table below suggests some indicators which could be developed in the near future:

Table 2: Indicators not yet being measured – some examples

Key domain	Indicators not yet being measured	Potential sources
Institutions outside education	Legislation around child labour, child marriage etc Mobilising support in and through institutions: ▪ National advocacy and community mobilization campaigns to change parental attitudes to promote and support girls' education; ▪ National education coalitions to support advocacy for girls' education and gender equality; ▪ Global campaign for education: participation and exchanges of information	National level data
Institutions of the education system	Specific data on gender budgeting in the education sector	National level data
Teaching and learning practice	▪ % of teachers having received gender-sensitive training by education level; ▪ % of countries that have included gender equality-related topics in their curricula (gender discrimination, gender roles, violence, sexual	National level surveys on teachers and curriculum.

	and reproductive health education)	
Resource distribution to and within schools and education programmes	▪ Incentives to increase girls' enrolment, in particular from for those from poor households, including scholarships, cash stipends (to reduce additional costs of schooling to families)	National level data
Norms	▪ Internationally comparable norms, values and attitudes survey, focusing on gender and education	World Values Survey Attitudes from DHS data and Eurostat; Program H Gender-equitable Men Scale; UNICEF surveys of children's confidence and views of schooling; bullying etc.; PISA data e.g. ABC & other material on autonomy from PISA; anything in TIMSS or SACMEQ?
Demographics	Existing UNESCO gender equity indicators, but with more granular detail, e.g.: - differences in which streams (academic, vocational, administrative) girls and boys are located - differences in the areas they proceed to work in after compulsory schooling (some version of data from Gender Status Index) - differences by ethnicity, location and SES (e.g. WIDE)	Enrolment, progression and completion figures (as in EDI) by gender, with additional dimensions provided by WIDE
Outcomes of education	▪ Cohort data, or linking datasets, enabling investigation of links between educational experiences and a range of political, social and economic outcomes at the individual level.	Longitudinal studies (e.g. Young Lives); DHS data; Women's Empowerment and Agriculture Index.

There are practical constraints to gathering these indicators. First, there are particular limitations on widely-collected, comparable measures that capture educational processes. There is considerable variation between countries in their capacity to collect census data, and sometimes findings are disputed. Longitudinal and linked data is time-consuming and expensive to collect. There is also missing data on women (ODI, 2015); and variance in global coverage; and also ethical issues, and issues around difficulties in collecting reliable data on sensitive issues like GBV.

Highly aggregated data facilitates comparisons, but can obscure important differences by groups; for example, the educational experiences of girls vary significantly by socio-economic status and location. Further, an aggregate increase does not mean an increase for all children. A related issue is the advantages and disadvantages of composite indicators, which might be able to capture a multi-faceted view of gender inequality and gender equality in schooling looks like for each country, but also risks losing the nuance of its constituent parts[22].

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[22] See also discussion on the OECD's SIGI webpage on the strengths and weaknesses of composite indicators, http://www.genderindex.org/methodology. Some examples of existing composite indicators relating to gender and education are: UNESCO's GEI; Indices for gender empowerment

SDG target 4.7 includes learning about gender equality, and while initial proposed indicators did not include any reference to educational processes relating to gender, in early 2016 this was amended to consider policies, curricula, teacher education and assessment (see box) (UN ECOSOC, 2016). It may be challenging to compile this information, particularly in a globally comparable form, but the amended indicator provides an opportunity to move data collection and analysis forward in new ways.

SDG 4.7

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

Proposed indicators: 4.7.1 Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment

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Priorities for monitoring the post-2015 agenda

Priorities should be twofold. First, better use needs to be made of existing data that a) enables us to get a better picture, beyond parity, of *substantive* gender equality in education, that can be comparable at the international level; and b) helps us understand links between education and other gender equality outcomes. Where indicators exist but do not have fully global coverage, countries should be supported and encouraged to gather comparable data.

Second, in the longer term, efforts must be made to develop the collection of further data, particularly gender aspects of teacher training, curriculum content, and pedagogic practice.

Developing more nuanced indicators of gender equality in education involves identifying and engaging with data gatherers and those who gives the steer on collecting and analysing gender education data. Current education sector planning needs much more attention to gender responsive processes, to use data collected for planning, programme design, implementation and monitoring. There needs to be wider collection of classroom observation data; further, not all countries accede to review processes[23]. An important next step is to develop a good enough and accountable process of data gathering and review.

It is important that discussions at the start of the SDGs about improving data collection continue. Collaboration between local, national and international institutions is a key part of practical solutions for turning the vision above into a reality.

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in education from Transforming Education for Girls in Nigeria and Tanzania (TEGINT); CARE's Gender Equitable Index; UIS SAGA project on women in STEM, http://www.uis.unesco.org/ScienceTechnology/Pages/saga-launch.aspx

[23] For example, the Convention on the Elimination of Discrimination Against Women (CEDAW) and the Convention on the Rights of the Child (CRC).

Streamlining

As part of SDG4, there needs to be discussions around links between substantive gender equality in education and other education goals. There are close links between indicators for target 4.5, and the other education targets that reflect gender equality issues such as 4.7 (teaching gender equality through curricula and textbooks content and teacher practices in classrooms), 4.a (gender-sensitive school facilities), 4.c (teachers supply, qualification and training, including in gender issues).

Moreover, these indicators for gender equality in education also underpin most of the other education goals. For example, SDG4.1, ensuring that all girls and boys 'complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes', can only be achieved if girls are equally able to derive outcomes and opportunities in equal proportion to boys, for which we need to monitor and address gendered processes in the classroom and institutions, rather than measure only parity in learning outcomes such as proficiency in reading and maths.

As discussed in section 2.2.2, there are also likely to be significant links between indicators for target 4.5 and SDG goal 5 on gender equality. It is therefore important for there to be closer links between those working on gender equality in education indicators and UN Women, both on use of existing data, and in advocating for further improvements. Wider dissemination and discussion with international bodies concerned with women's rights are needed, for example CSW would be a suitable forum for presentations and discussions of links between reforms in education and SDG5 under the new policy agenda.

New mechanisms are needed to support the monitoring of substantive gender equality in education

Some important next steps could include:
- Forming a working group on measurement methodology (including the involvement of UNESCO-UIS, UNGEI and UN Women)
- Regular reports on progress on monitoring at the global level (alongside reporting annually on indicators, through UNESCO GEM and UNESCO-UNGEI EFA Gender Summary)
- Coordination of national-level efforts to collect new data, in partnership with governments and education ministries, and involving regular reporting, conferences and workshops.
- Building a transnational network for women's education groups, sharing strategies on advocating for and engaging with global progress on measurement.

Conclusions

Overall, the SDGs offer a new range of possibilities for gender equality in education, including both political opportunities and funding streams, along with new thinking around ever-increasing amounts of data on education. However, as the discussions in this paper have shown, it is important to learn from the challenges and limitations of the MDGs, and to recognise the importance of thinking about gender equality in a more substantive sense. The new phase of efforts must include moving beyond instrumentalist discourses that foreground access and individual, narrow notions of empowerment; and ultimately, building a transnational movement focusing on substantive gender equality in education.

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Appendix 1: Unterhalter's 7 domains

Unterhalter's (2015) 7 domains are set out in the table below, alongside some example indicators – these are both qualitative and quantitative and are mostly available at the global level.

Key domain	Policies and practices supporting gender equality in schools
Institutions outside education	Laws, policies and practices which include women in political and economic resources and activities. Laws which proactively compensate and seek to redress the impact of historical inequalities, e.g. laws which protect against child marriage, misogyny, violence against women, and which support sexual and reproductive health etc.
Institutions of the education system	Presence of women at different levels of decision making and leadership. Promotion of discussion of gender and equality in teacher education & development. Discussion of reproductive rights & sex/sexuality education. Discussion of gender and equality issues in curriculum & learning materials. Concern with gender equality in examination systems in use. Codes of conduct to deal with SRGBV ensuring knowledge and enactment.
Teaching and learning practice	Discussion of gender and equality issues in curriculum & learning materials. Discussion of gender dynamics in teaching and learning between teachers and students, students and students (i.e., small group learning) in all subjects. Strategies for correcting gender bias in teaching and learning with learning outcomes.
Resource distribution to and within schools and education programmes	*Provision of resources to realise gender sensitive education:* Gender budgeting and scrutiny of finances in terms of what is spent on women and men; includes gender equality in teacher pay and conditions, schools, adequately trained teachers, learning materials, water, transport, food, secure long term finance. Concern to consider additional resources for groups of girls or boys with additional gender inflected needs.
Norms	Presence of girls' and women's voices in reflecting on aspects of SRGBV, reproductive rights, women's participation in transforming inequalities including identifying stigma and stereotyping. Strategies to address high levels of violence (sexual violence/harassment, corporal punishment, bullying), and address attitudes that support stereotypes and misogyny. Fostering attitudes, actions and symbols that challenge stereotypes, discriminatory practices and behaviours. Work with boys and men understanding and seeking to change gender and other inequalities.
Demographics	Absence or reducing gender disparities in enrolment, attendance, progression, attainment and learning outcomes; knowledge about gender and other inequalities. Consider in relation to intersections with class, race, ethnicity and location.

Outcomes of education	Connections or relationships between levels or relationships of schooling for groups defined by gender and other historical inequalities and the building of equalities in relation to labour market access, conditions of employment, access to resources, political participation, and participation in social or cultural action and improvements in health.