Gender Equality

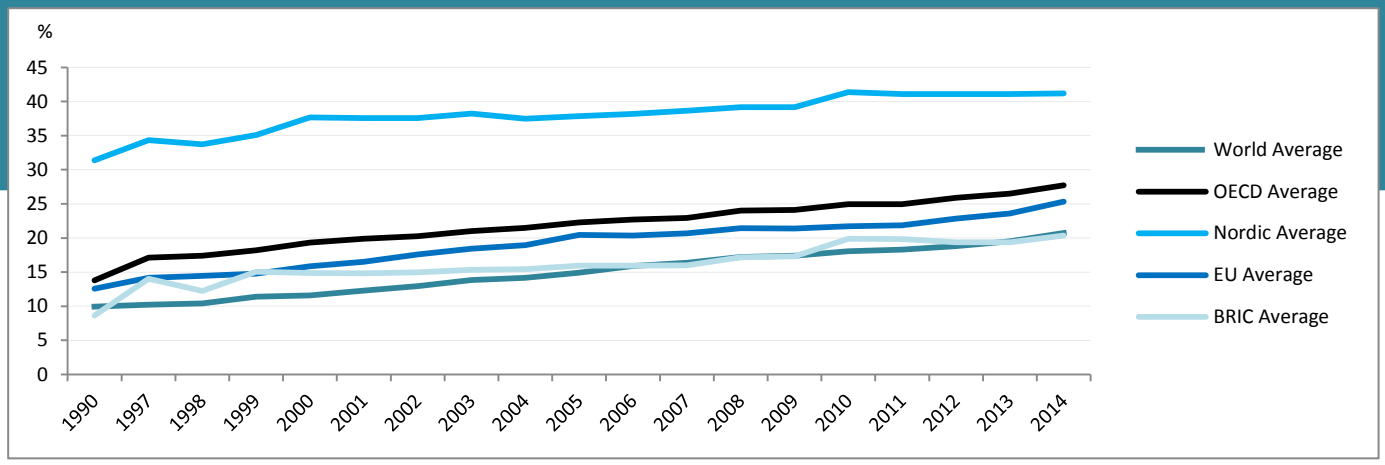
Over the past decades, societies in the OECD have made considerable progress in terms of gender equality. Education plays an important role in ensuring that women and men have the same opportunities in their personal and professional lives, through formal schooling, shaping attitudes and transforming behaviours.

Gender equity better today but challenges remain

In many areas, gender equality across the OECD has improved substantially over the past decades. Medical and technological innovations, work-life balance measures, accessibility of family planning and legal safeguards have improved the role of women in public life. Nowadays, women in OECD countries can choose what to study, which job to take as well as whether or not to have children.

Similarly, women's representation in political decision-making has improved (OECD, 2014a). Worldwide, the proportion of seats in national parliaments held by women more than doubled from 9% to 20% in the period between 1990 and 2014. Within OECD countries, women now hold almost 28% of seats compared to only 14% in 1990. The Nordic countries have taken the lead in this respect and are closest to achieving gender-equality in national parliaments (see Figure 1).

Figure 1: Proportion of seats in national parliaments held by women, by region



Source: UN (2014), Millennium Development Goals Indicators, http://mdgs.un.org/unsd/mdg/Metadata.aspx?IndicatorId=0&SeriesId=557

Gender equality does not mean that men and women should become the same but that a person's rights, responsibilities and opportunities should not depend on whether they are born female or male (UN Women, 2014).

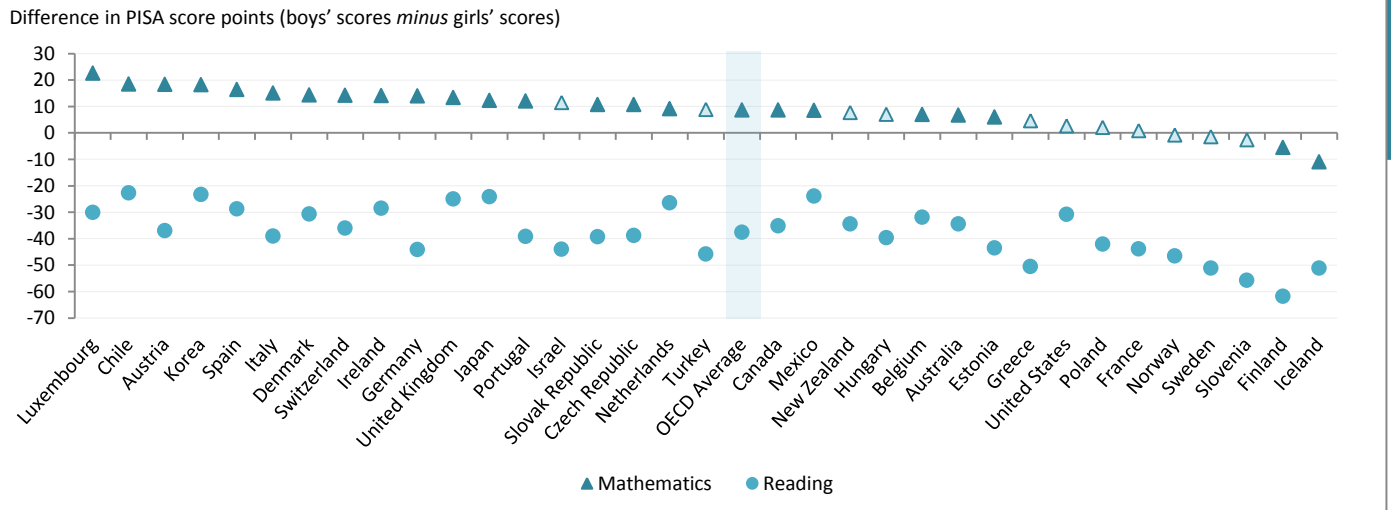
However, there are a number of areas where more effort is needed to improve gender equality. Women still earn substantially less than men and over the last 10 years the gender based wage-gap has only marginally decreased. The wages of women who did not complete upper secondary education amounted to only 66% of men's wages in 2011, compared to 62% in 2000 (OECD, 2013).

Women are also far less likely to become entrepreneurs: across the 27 EU countries, only 25% of business owners with employees are female, a figure that has not significantly changed in the last decade (OECD, 2014e). Hence, even though it is important to acknowledge the progress that has been made in the past decades, substantial inequalities remain.

Gender gaps in reading and mathematics

There is a gender gap in educational achievement in different subjects, and this gap increases as students get older. At the primary level, boys and girls do equally well in mathematics and science but girls have a clear advantage in reading (OECD, 2012a). At the secondary level while girls maintain their advantage in reading a gap in favour of boys emerges in mathematics.

Figure 2: Mean differences between boys and girls in mathematics and reading in PISA 2012, by country



Reading example: In Luxembourg, boys' scores in reading are on average 30 points lower than girls' scores (boys' scores minus girls' scores). In mathematics, boys' scores are on average 23 points higher than those of girls.

Source: OECD (2014), PISA 2012 Results: *What Students Know and Can Do (Volume I, Revised edition, February 2014): Student Performance in Mathematics, Reading and Science*, PISA, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264208780-en

As shown in Figure 2, the gender gap in reading is much larger than the gap in mathematics. On average, the reading gap was equal to 38 points in PISA 2012, which roughly equals one year of schooling. The gap in mathematics was 9 points on average. The countries with the largest gender gaps in mathematics are Austria, Chile, Korea and Luxembourg, where boys outperform girls by approximately 20 points. However, for a number of countries (shown as light blue triangles) the mathematics gap is not statistically significant (meaning that boys and girls perform equally well).

In all OECD countries, girls perform significantly better at reading than boys. In countries like Finland, Iceland, Slovenia and Sweden, girls perform more than 50 points better in PISA than boys. In comparison, in countries like Chile, Mexico and Korea, girls score approximately 20 points better than boys.

In Finland and Iceland, girls outperform boys in reading as well as in mathematics.

Getting boys into reading and girls into mathematics

Where do these gender differences in performance come from? It is not the case that girls and boys have inherently different abilities in these subjects. Instead, performance differences are driven by the fact that schools and societies foster different levels of self-confidence, motivation and interests for different subject areas among boys and girls (OECD, 2015). Indeed, the large variation in the size of gender-gaps across countries indicates that these stereotypical gender differences can be overcome.

How could this be done? In terms of reading, boys consistently display less interest than girls do, and when they do read they are more likely to read less complex texts like comic books. Girls are significantly more likely to read for pleasure and read more complex fiction and non-fiction books (OECD, 2015). Hence, schools need to help male students develop a more positive attitude towards reading.

Providing books that appeal to boys is an important step to get them more interested in reading. Teachers should diversify classroom reading lists and school libraries to cater more to the reading-tastes of boys. As part of this process, it can help to engage boys in a discussion about what they would like to read. The Comic Book Project (CBP), which was implemented in the City of New York as well as in Imperial Valley, California, is an example of this (CBP, 2014). The CBP aimed to increase the literacy skills of disadvantaged students and boys

Guys Read (USA)

Guys Read is a web-based literacy programme for boys that was founded by the American children's book author Jon Scieszka in collaboration with a group of teachers. The platform aims to get boys interested in reading. Guys Read developed from the finding that boys can get motivated to read with the rights kinds of books and stories. The initiative provides a number of reading lists and authors for boys of all ages that can be used by teachers, parents and libraries. Users can also rate books and reading lists on the site and make their own suggestions.

Guys Read also encourages and facilitates the creation of field offices and helps organize and coordinate local projects with the aim of getting boys interested in reading across the USA.

More information: http://guysread.com/

by engaging them in the process of writing, designing and publishing comic books. An independent evaluation showed that classrooms that participated in the project achieved significantly higher reading scores in standardised tests than the comparison classrooms (USDE, 2009).

Families also play a crucial role in the process of getting boys interested in reading. An important step that parents can take is to read to their sons as well as their daughters. Additionally, fathers can serve as role models and can change their children's attitudes towards reading by showing them that it can be enjoyable for both genders (OECD, 2012a).

Perceptions of gender roles are also important in explaining gender differences in mathematics.

Even though 15-year old girls perform on average only slightly worse than boys in mathematics, they report much lower levels of interest and enjoyment and indicate much higher levels of anxiety and stress (OECD, 2013b). Across the OECD, 62% of girls believe that they are "just not good in mathematics" as compared to 52% of boys (OECD, 2013b). Even girls who perform as well as boys at age 15 report much lower levels of confidence in their abilities (OECD, 2015). In fact, girls rate their own mathematics abilities below those of male students starting from the first year of primary school, even though average performance does not differ between boys and girls at this age (Fredericks and Eccles, 2002; Herbert and Stipek, 2005).

Female students need to believe that mathematics is not just a "thing for boys" and that everyone, regardless of gender, can do well. Families and schools can make a difference. For example, starting in 2000 the Korean government has gradually introduced more female-friendly mathematics curriculums by using gender-neutral language in textbooks and introducing alternative learning materials (OECD, 2012a). Has it worked? While a direct causal link has not been established, the gender gap decreased markedly in PISA scores in mathematics between 2003 and 2012, from 27 to 18 points.

Gender inequality in the teaching profession

The vast majority of teachers are female across the OECD. This is most marked in pre-primary and primary education, where approximately 8 out of 10 teachers are women (OECD, 2014b). These differences are also evident in secondary education: 68% of lower secondary teachers in participating TALIS countries are female. In countries like Estonia and the Slovak Republic, more than 80% of teachers are women (OECD, 2014d).

Is this important? Among journalists and policy-makers, there is a penchant to connect the lower performance of boys (particularly in reading) to the fact that most teachers are female. However, while the argument is intuitive, there is little evidence that suggests boys would perform better if they were taught by male teachers (Drudy, 2008). A study carried out in the UK found that the gender of teachers had very little effect on the performance of either boys or girls (Carrington et al., 2007). Research evidence does not suggest that simply bringing men into the teaching profession would improve boys' achievement.

Aiming for a better balance of men and women among teachers can nevertheless have positive effects on all students. Male teachers can serve as role models and contribute to students developing positive gender identities, particularly for those students who do not have many positive male role models in their lives. Some countries are actively seeking to increase the numbers of male teachers. In the UK for example, the Training and Development Agency (TDA) has made a specific effort to recruit qualified male primary teachers. They have developed a campaign aimed specifically at recruiting men into the profession, which emphasises the rewarding nature of teaching and provides taster courses for male applicants in primary schools (TDA, 2014). Similar efforts are taking place in a number of other jurisdictions.

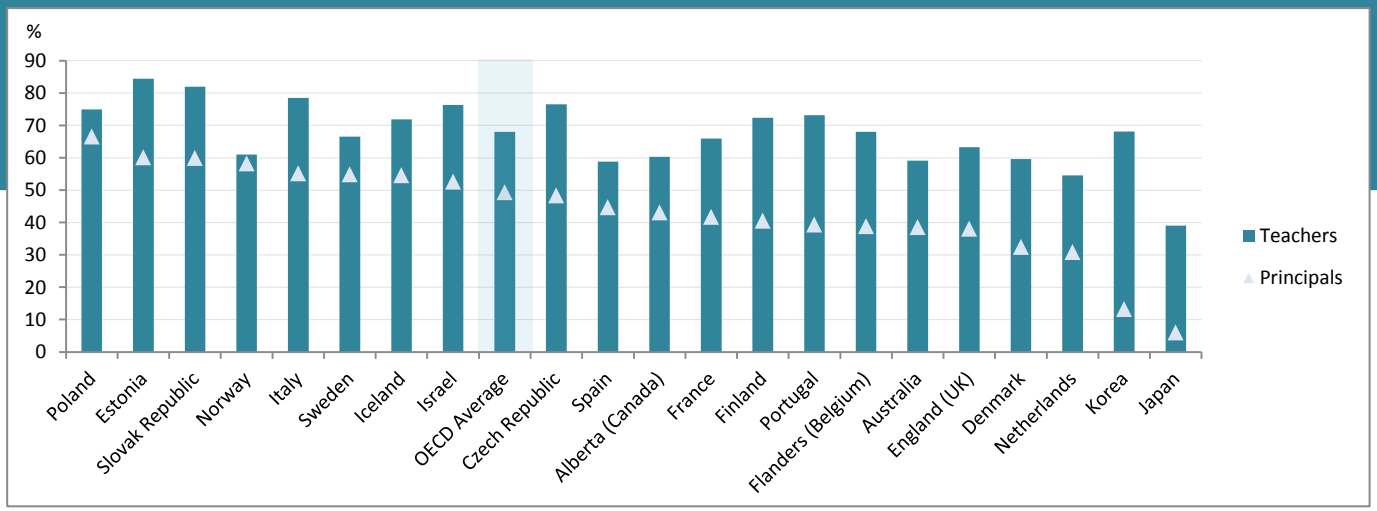
> Japan is the only country in the OECD in which there are more male than female secondary school teachers. In fact, only 39% of lower secondary teachers in Japan are women (OECD, 2014c).

Female teachers and male principals

While teaching is a predominantly female profession, there is gender segregation both in terms of who teaches what and in terms of who is a teacher and who is a school leader. For instance, in lower secondary school, science, mathematics and technology are taught more often by men than would be expected from their overall proportion among teachers, although there are some exceptions.[1] In addition, the gender balance between teaching staff and management positions is not equal.

Across the OECD, 68% of teachers but 49% of principals in lower secondary education are women. While this means that on average every second principal is female, there is wide country variation. For example, 68% of Korean teachers are female whereas only 13% of Korean principals are women. In Finland and Portugal, 7 out of 10 teachers are women but only about 4 out of 10 principals are. On the other hand, in Norway, 61% of teachers and 58% of principals are women, and in Poland, the gender imbalance is below 10% (see Figure 3).

Figure 3: Percentage of female lower-secondary teachers and principals, 2013



Source: OECD, TALIS 2013 Database, Table 2.1 (teachers) and Table 3.8 (principals)

Why are women not found in the position of school leader more often, given that they make up the majority of the teaching force? Research suggests that the composition of the boards that select principals can have important consequences. Booking (2008) conducted a series of interviews with principals and school-board members in New Zealand. The author found that several trustee boards preferred male applicants, not because of skills or experience, but for other, more localised reasons, such as a perceived lack of male role models in the community. Booking argues that a lack of official guidelines and monitoring has been disadvantageous to female candidates.

[1] Poland and Bulgaria are exceptions: here women make up a distinctively larger share among mathematics, science and technology teachers than among all teachers on lower secondary level.

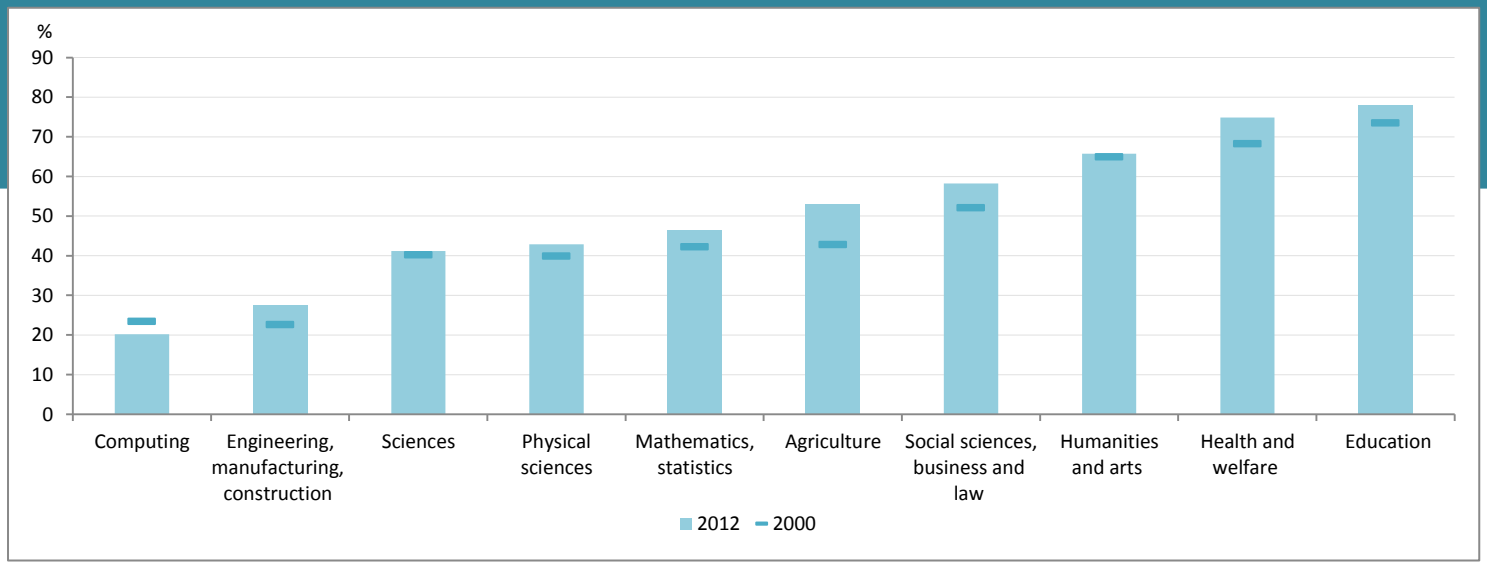
Certainly, many factors determine the number of female principals in a country. The education and skill level of candidates, individual willingness to take up the role of principal, the number of female applicants, as well as gender-bias in perceptions of leadership ability play an important role. Changing these obstacles requires systemic efforts that go beyond the individual hiring process. While providing hiring boards that select principals with clearer guidelines or gender targets can be a first step towards increasing representation of women in school leadership positions, more can and should be done to decrease other sources of potential bias or barriers to female leadership.

Gender differences in young adults' education and career choices

In Poland more than 30% of boys plan to pursue a career in engineering and computing, compared to less than 10% of girls.

With 58% of university degrees awarded to women in 2012, women's participation is firmly embedded in tertiary education (OECD, 2014c). However, there is a gender gap when it comes to the fields of study that men and women choose. As shown in Figure 4, women are significantly under-represented in STEM subjects (Science, Technology, Engineering and Mathematics). In computer science, only 20% of graduates in 2012 were female, lower than the 23% of twelve years prior. It is the only subject with a decrease in the share of female students since 2000, indicating that more could be done to encourage women to study computing.

Figure 4: Percentage of female tertiary graduates, by field of education (2000, 2012)



Source: OECD, Education at a Glance 2014, Table A3.3.

The gender differences observed in tertiary education are even more pronounced in vocational programmes. More than one in two male students but less than one in ten female students graduate from vocational training programmes with a STEM orientation (OECD, 2012a). In addition to these differences in subject choice, women who graduate in STEM subjects are significantly less likely than men to pursue a career in those fields. On average, 71% of male graduates from STEM subjects work as professionals in STEM fields, as compared to only 43% of female graduates. In comparison, men and women who pursued a degree in the humanities or health make much more similar choices about the kinds of careers they pursue (OECD, 2012a).

In contrast to STEM subjects, men are starkly underrepresented in fields like Education and Health Sciences, where more than 70% of graduates are female.

What explains this pattern? Flabbi and Tejada (2012) find that gender differences in field of study are not strongly related to expectations about labour market outcomes, as measured by wages and occupational segregation. They argue that girls and boys make different choices for a number of reasons, such as the historical predominance of men in manual occupations, potentially innate preferences, thinking of future family obligations, as well as stereotypical expectations at home and amongst peers and teachers.

Gender differences can be seen in career expectations of 15-year olds: fewer than 5% of girls but 18% of boys expect to work in engineering or computing at age 30, while 16% of girls, but only 7% of boys expect to work in health-related careers, even after excluding particularly female-dominated occupations like nursing or midwifery. This difference is not related to level of academic performance. Girls who were amongst the highest achieving students in science and mathematics were not more likely to contemplate careers, such as computing or engineering, than their lower-achieving peers (OECD, 2012b).

Encouraging women to work in STEM (Austria)

The FiT (Frauen in Handwerk und Technik) programme in Austria seeks to motivate women and girls to pursue technically and scientifically oriented subjects at university and in vocational training programmes. The FiT programme includes regular information sessions and numerous initiatives aimed at getting women and girls interested in STEM. It is part of the Austrian Public Employment Service (AMS).

Among other things, FiT secures 2-4 week long internships for women in the STEM field. They also give girls the chance to attend university lectures in STEM subjects before they finish their secondary education. FiT also tries to target unemployed women that seek to change careers and finances women's transition into technical occupations.

More information (in German): http://www.ams.at/service-arbeitsuchende/angebote-frauen/frauen-handwerk-technik

This is not due to a lack of ambition. In fact, girls display on average greater ambition for top jobs than their male peers. Rather, girls tend to choose other careers, for example in medical and other health professions – science-related careers with an emphasis on care (Sikora and Pokropek, 2011).

There are at least two reasons why gender segregation in subject choice is a problem. The first is economic. A report by the International Monetary Fund (IMF)

argues that the gender gap in the labour market accounts for up to 27% of lost GDP per capita. Raising the female labour market participation to male levels could raise GDP in the US by 5%, in Japan by 9% and in Egypt by as much as 34% (IMF 2013).

Secondly, there is a moral imperative to ensure that everyone can choose the subject or career that appeals to him or her. We need to ensure that we create a society in which men can become nurses and women can become mechanics without any hesitation or discrimination, if this is what they choose to do.

Combatting gender-stereotypes

Gender segregation in career choice results in talent loss for the individual as well as for society. Recent research suggests that gender-diverse business teams have greater success in terms of sales and profits than male dominated teams (Hoogendoorn et al., 2011). Having more women on a team also contributes to better problem solving (Woolley et al., 2010).

Yet old stereotypes die hard. Women still struggle to reach top leadership positions, and are less likely to become entrepreneurs. This is a missed opportunity for economic development. It can also hinder women's labour force participation: women often decide to start a business because they do not see another way to participate in the labour market with the flexibility they need (OECD, 2014e).

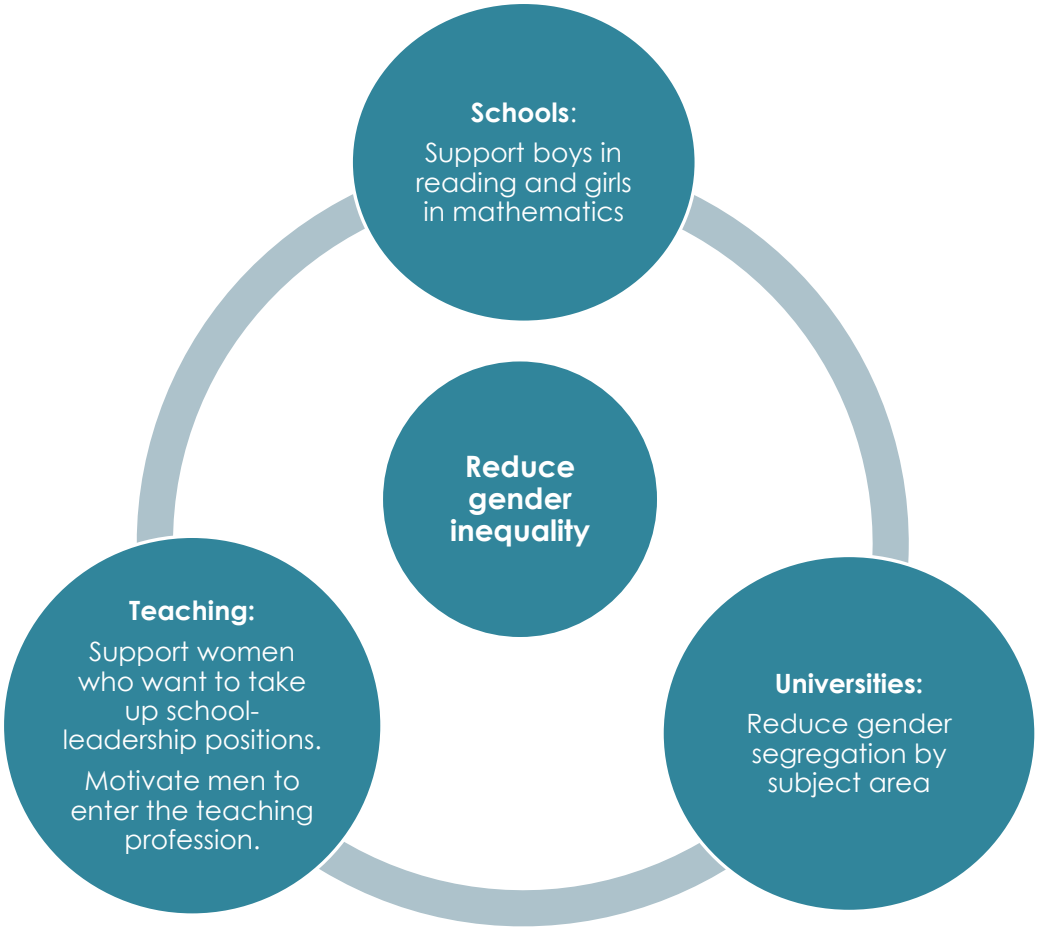
Perceptions of what counts as "masculine" and "feminine" vocations are formed early in life and are strongly influenced by traditional perceptions of gender roles (Kane and Mertz, 2011). To combat gender stereotypes, local policies, for instance targeted vocational counselling, must be embedded in comprehensive efforts to trigger and consolidate cultural change. Importantly, such policies must be implemented at an early stage of students' educational orientation. These policies must also include parents, who play a strong role in the educational and career choices of their children: In the 2012 PISA test, parents were more likely to expect their sons, rather than their daughters, to work in STEM related fields – even if their children perform at the same level in mathematics (OECD, 2015).

The Scottish government has made efforts to reduce gender based occupational segregation with its "Be what you want" campaign (Close the Gap, 2014). The campaign specifically targets 11-14 year old students in Scottish schools and tries to support the aspirations of young people by highlighting the barriers that boys and girls face when trying to enter "non-traditional" areas of work.

More efforts are needed to reach gender equality

Even though great advances have been made over the past decades, we still do not live in a world where men and women have the same opportunities. Gender stereotypes still influence children in their perception of which subjects they should find interesting and in which areas and activities they might excel. They also limit young men and women in their subject choices at university, which leads to fewer female mathematicians and computer scientists as well as fewer male teachers and healthcare workers. Gender inequality also exists in schools and society more broadly, and is mirrored in the lack of women in leadership positions and female entrepreneurs.

Policies at all levels need to combat gender inequality in all forms and work towards creating a world in which men and women have equal rights, responsibilities and opportunities. This is important: gender inequality reinforces other forms of inequality, such as those related to socio-economic status, sexual orientation, cultural background and age. Hence, gender is not the only important cleavage in society, and people who are multiply disadvantaged need particularly strong support. Education can play a role in this.



References

- Booking, K. (2008), "The future challenge of principal succession in New Zealand primary schools: Implications of quality and gender", *ISEA,* Vol. 36(10), pp. 41-55.
- Carrington, B. et al. (2007), "Does the gender of the teacher really matter? Seven- to eight-year-olds' accounts of their interactions with their teachers." *Educational Studies,* Vol. 33, no. 4, pp. 397–413.
- CBP (2014), "Comic Books Written and Designed by Youths", www.comicbookproject.org/ (accessed 4 August 2014).
- Close the Gap (2014), "Be what you want: About us", www.bewhatyouwant.org.uk/content/about/ (accessed 4 August 2014).
- Croft, A. et al. (2014), "The second shift reflected in the second generation: Do parents' gender roles at home predict children's aspirations?", *Psychological Science*, Vol. 25(7), pp. 1418-1428.
- Drudy, S. (2008), "Gender balance/gender bias: the teaching profession and the impact of feminization." *Gender and Education,* Vol. 20, pp. 309-323.
- Flabbi, L. and M. Tejada (2012), "Fields of Study Choices, Occupational Choices and Gender Differentials", background paper for the OECD Gender Initiative.
- Fredericks, J.A. and J.S. Eccles (2002), "Children's competence and value beliefs from childhood through adolescence: Growth trajectories in two male-sex-typed domains", *Developmental Psychology*, Vol. 38, No. 4, pp. 519-533.
- Herbert, J. and D.T. Stipek (2005), "The emergence of gender differences in children's perceptions of their academic competence", *Journal of Applied Developmental Psychology*, Vol. 26, No. 3, pp. 276-295.
- Hoogendoorn, S., H. Oosterbeek and M. van Praag (2011), "The Impact of Gender Diversity on the Performance of Business Teams: Evidence from a Field Experiment", Tinbergen Institute Discussion Paper. Amsterdam School of Economics, University of Amsterdam.
- IMF (2013), "Women, Work, and the Economy: Macroeconomic Gains from Gender Equity", IMF Staff Discussion Note http://www.imf.org/external/pubs/ft/sdn/2013/sdn1310.pdf (accessed 20 February 2014).
- Kane, J.M. and J.E. Mertz (2011), "Debunking myths about gender and mathematics performance", *Notices of the American Mathematical Society*, Vol. 59, No. 1, pp. 10-21.
- OECD (2015), "What Lies Behind Gender Inequality in Education?", *PISA in Focus*, No. 49, OECD Publishing, Paris. http://dx.doi.org/10.1787/5js4xfthhc30-en
- OECD (2014a), Women, Government and Policy Making in OECD Countries: Fostering Diversity for Inclusive Growth, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264210745-en
- OECD (2014b), PISA 2012 Results: *What Students Know and Can Do (Volume I, Revised edition, February 2014): Student Performance in Mathematics, Reading and Science*, PISA, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264208780-en
- OECD (2014c), *Education at a Glance 2014: OECD Indicators*, OECD Publishing, Paris. http://dx.doi.org/10.1787/eag-2014-en
- OECD (2014d), TALIS 2013 Results*: An International Perspective on Teaching and Learning*, TALIS, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264196261-en
- OECD (2014e), Enhancing Women's Economic Empowerment through Entrepreneurship and Business Leadership in OECD Countries. OECD Background report. www.oecd.org/gender/Enhancing%20Women%20Economic%20Empowerment_Fin_1_Oct_2014.pdf (accessed 22 January 2015).
- OECD (2013b), PISA 2012 Results*: Ready to Learn: Students' Engagement, Drive and Self-Beliefs (Volume III),* PISA, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264201170-en
- OECD (2012a), "Gender equality in education", in OECD, *Closing the Gender Gap: Act Now*, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264179370-4-en
- OECD (2012b), "What Kinds of Careers do Boys and Girls Expect for Themselves?", *PISA in Focus*, No. 14, OECD Publishing, Paris. http://dx.doi.org/10.1787/5k9d417g2933-en
- OECD (2011), Report on the Gender Initiative*: Gender Equality in Education, Employment and Entrepreneurship 2011*, Report prepared for the Meeting of the OECD Council at Ministerial Level, Paris, 25-26 May 2011, OECD Publishing, Paris.

- OECD (2004), *Learning for Tomorrow's World: First Results from PISA 2003*, PISA, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264006416-en
- Sikora, J. and A. Pokropek (2011), "Gendered career expectations of students: perspectives from PISA 2006", *OECD Education Working Papers*, No. 57, OECD Publishing, Paris. http://dx.doi.org/10.1787/5kghw6891gms-en
- TDA (2014), "Get into teaching", www.webarchive.nationalarchives.gov.uk/20120203163341/http:/www.tda.gov.uk/ (accessed 12 August 2014).
- UN Women (2014), "Concepts and Definitions", www.un.org/womenwatch/osagi/conceptsandefinitions.htm (accessed 18 July 2014).
- USDE (United States Department of Education) (2009), "Using Sequential Art (USA) Comic Book Project, Supplemental Report on Student Performance Data", www.comicbookproject.org/picts/usdoe%20report.pdf (accessed 4 August 2013).
- Woolley, A, et al. (2010), "Evidence for a collective intelligence factor in the performance of human groups", *Science*, Vol. 330, pp. 686-688.

For more information

Contact **Tracey Burns** (tracey.burns@oecd.org)

See **OECD (2013), *Trends Shaping Education 2013*, OECD Publishing**

Visit www.oecd.org/edu/ceri/trendsshapingeducation2013

www.oecd-ilibrary.org/education/trends-shaping-education-2013_trends_edu-2013-en

www.oecd.org/edu/ceri