

Teacher Influence on Girls' Math Identity

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Key Point

Teachers can have a significant positive or negative influence on girls' mathematics identity, which in turn influences girls' dispositions, performance, and participation in mathematics.

Selected Strategies for Educators to Support Females in STEM

- Emphasize the importance of effort and appropriate experiences rather than natural ability.
- Help females develop appropriate dispositions in relation to STEM, such as positive self-perceptions.
- Hold high expectations for and encourage and support *all* girls in STEM.
- Use varied, student-centered teaching methods within a "safe" classroom climate.
- Emphasize process, not just product.
- Employ measures to ensure equal and fair student participation, such as rotating who answers, how often, and when (e.g., not always being among the first or last to answer questions).
- Provide ongoing training in two- and three-dimensional visual-spatial skills that involve mental, pictorial, and tactile and kinesthetic tasks.
- Use gender-fair teaching materials.
- Provide diverse historical and contemporary female role models (and their work) in STEM through stories, posters, films, guest speakers, class assignments, and so on.
- Use a variety of formal and informal assessment techniques so that girls may demonstrate learning through more conventional tests as well as performance on in-class work and projects, presentations, role plays and skits, video and website productions, community service, and other means that may at times involve a choice among designated options.
- Use online, face-to-face, and other outreach methods to actively recruit girls into voluntary courses and STEM activities.
- Provide information and resources on STEM careers and career preparation.
- Teach girls how to help themselves in STEM.
- Educate parents through such avenues as newsletters, parents' nights/workshops, and online information regarding the importance of STEM performance and participation for females.
- Advocate for gender equity in the STEM disciplines at the school and community levels, as well as that of the wider society.
- Continue to grow professionally by learning more about gender issues in the STEM disciplines and how to address these issues effectively.

Selected Teacher Resources

- Baker, D. (2014). *Teaching for gender difference* [in science]. Available at <http://www.narst.org/publications/research/gender.cfm>
- Halpern, D. F., Aronson, J., Reimer, N., Simpkins, S., Star, J. R., & Wentzel, K. (2007). *Encouraging girls in math and science: IES Practice Guide*. Washington, DC: U.S. Department of Education, National Center for Education Research, Institute of Education Sciences. Available at <http://ies.ed.gov/ncee/wwc/PracticeGuide.aspx?sid=5>
- Heilbronner, N. N. (2009). Jumpstarting Jill: Strategies to nurture talented girls in your science classroom. *Gifted Child Today*, 32(1), 46–54.
- James, A. N. (2009). *Teaching the female brain: How girls learn math and science*. Thousand Oaks, CA: Corwin.
- Kehl, W. (2013). *Closing the STEM gender gap in K-12 education: How teachers can help*. Available at <http://gettingsmart.com/2013/03/closing-the-stem-gender-gap-in-k-12-education-how-teachers-can-help/>
- PREMA (Promoting Equality in Maths Education): <http://prema.iacm.forth.gr/deliverables.php>
- UNESCO. (2006). *Girls and science: A training module on motivating girls to embark on science and technology careers*. Available at http://portal.unesco.org/science/en/ev.php-URL_ID=4965&URL_DO=DO_TOPIC&URL_SECTION=201.html
- Wiest, L. R. (2012). *Strategies for educators to support females in STEM*. Available at <http://www.unr.edu/girls-math-camp/resources/educators/tips>