

Pre-service Teachers' Knowledge of Women's Contributions to Physics

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Think of a physicist

- Did you think of a woman?
- Did you think of a physics teacher?
- Did you think of yourself?

In Texas students must

- “explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society.”
- “research and describe the contributions of scientists to our changing understanding of astronomy, including Ptolemy, Copernicus, Tycho Brahe, Kepler, Galileo, Newton, Einstein, and Hubble, and the contribution of women astronomers, including Maria Mitchell and Henrietta Swan Leavitt”

"Enhancing the understanding and appreciation of physics through teaching"

What teachers know.

- 15 years ago I surveyed 200 pre-service teachers and general education students, asking them to name a scientist and then name a woman scientist.
- Last fall I surveyed 20 pre-service STEM education teachers in the capstone UTeach (teacher prep) course, asking them to name a woman scientist and then a female physicist.

Results

- In the previous study, ~half could not name a female scientist.
- In the latest study, 7/20 future teachers could not name a woman scientist. 14/20 could not name a woman physicist (even though 6/20 identified Marie Curie as a woman scientist. “Gooden”, Franklin, and “John Adam’s wife” were named as scientists. JAM and Sally Ride were listed as physicists in addition to Curie.

The news-

- Apparently merely raising the issue is enough to develop an awareness. In the previous study, 4/5 students were able to name female scientists after a course in which women scientists were mentioned.
- Further, students were prompted to learn more on their own by simply taking the pre-test.
- Still unknown: How awareness translates into teacher action

Resources

- <http://cwp.library.ucla.edu> (Contributions of 20th Century Women in Physics)
- AIP lesson plans on the history of women in physics and astronomy:
<http://www.aip.org/history-programs/women-physics-astronomy-and-related-disciplines>
- And coming soon

Women and Physics: A Volume in Honor of Melba Newell Phillips



"Enhancing the understanding and appreciation of physics through teaching"

- A collection of reprints from The Physics Teacher, the American Journal of Physics, PRST-PER, and Physics Today.
- Hard copy and e-book.
- Advance purchase coming this spring.
- Release and book signing at the 'Melba Toast' at SM14.

Contents

- Reviews and gender-related PER
- Biographies (Melba Newell Phillips, Lise Meitner, Sarah Frances Whiting, pioneers in nuclear physics, women of the Manhattan Project)
- Analyses of the role of women in physics

For more information

- Contact marshall@austin.utexas.edu
- **Marshall, J.A. & Dorward, J.T. (1997).** The effect of introducing biographical material on women scientists into the introductory physics curriculum. *Journal of Women and Minorities in Science and Engineering*, 3 (4), 279-294.