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She-Space: A multi-disciplinary educational space project for high school girls

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Studies investigating the underrepresentation of women in STEM (Science, Technology, Engineering and Mathematics) fields found several factors for the gender bias including; lack of female role models, insufficient exposure to STEM subjects, and gender stereotypes. The Earth and Planetary Image Facility (EPIF) in Ben-Gurion University of the Negev, academically accomplished an annual multi-disciplinary educational space project for high school girls, named "She Space". The project was supported and funded by the Israeli Space Agency in the Israeli Ministry of Science and Technology.
The main purpose of this project was to ignite young girls interested in STEM studies by exposing them to female researchers using space sciences and remote sensing technologies while enabling them to experience research via hands-on activities in the lab.

During the project, the girls were introduced to remote sensing research and concepts. Satellite remote sensing is an attractive and interesting framework for high-school students as a learning topic and as a tool, and is not taught at high schools. The participants were divided into four research teams, and were assigned with different ecological and agricultural research topics that can be investigated using remote sensing. Each team conducted a full research procedure mentored by an academic supervisor (graduate students and academic staff from the EPIF, mostly female). The teams composed their research proposal, conducted field measurements with different spectral sensors such as a thermal camera and hyperspectral field spectrometers (ASD), and learned how to process analyze and display the data collected, including the satellite image data collected at the same time as the fieldwork.
This project implements three educational elements that have been proven to be affective for teaching in a STEM classroom and for young girls in particular: 1) active learning, in essence learning by doing instead of passive lectures. 2) A multidisciplinary approach, while the subject of remote sensing is not part of the school syllabus, it combines many aspects and terms relating classical school disciplines such as physics, chemistry, biology, geography, and computer science. This provides girls the opportunity to overcome prejudges about the above subjects and about their personal learning skills of those subjects. 3) Context- and project-based learning (PBL), the project was dedicated to applicative remote sensing research that the girls planned and conducted, this was the main motivation and framework for their learning.
At the end of the project, the girls reported an increase interest in physics and space oriented disciplines as well as increased confident in using computer software. Most of the girls claimed that the gender segregation of the project improved both the social atmosphere (80%), as well as the education atmosphere (60%) in the classes.