

News

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Vocational orientation in STEM: Siemens Stiftung's work in Ghana

The availability of qualified specialists in STEM is an important factor for a nation's sustainable economic development. However, even though well-trained professionals are crucial for value creation in a country, the societal reputation of vocational education is not always sufficient for this demand to be met.

Part of the work needed to bridge the gap between scholastic theory and working life relies on cooperation with local and regional stakeholders in STEM education. In addition, it is essential that educators receive proper training for building these bridges.

Siemens Stiftung provides advanced training for educators that emphasizes vocational orientation. These hands-on teaching methods are supplemented by digital components: in addition to digital lesson materials for teachers and students, the Siemens Stiftung Media Portal provides web-based training (WBT) for vocational orientation. The WBTs use visualizations about vocational profiles, such as an electrician or agripreneur, to combine straightforward STEM knowledge and vocational orientation while increasing awareness about STEM professions.

Cooperation for vocational orientation in Ghana

In Ghana, Siemens Stiftung works with CTVET, the Commission for Technical and Vocational Education and Training. CTVET is an agency within the education ministry responsible for vocational education. One of CTVET's goals is to increase the recognition and social esteem of vocational education in Ghana. To achieve this goal, CTVET has implemented a number of programs, initiatives, and marketing strategies.

One is called TVET-Clubs, which is implemented at junior high schools. It is in junior high school – during the delicate 7th through 9th grades – where adolescents make decisions about the focus and direction of the next steps in their school career. This is where CTVET and Siemens Stiftung want to start generating excitement among young people for STEM, and later for STEM professions.

Using the "Experimento - Vocational Orientation" program, the process involves turning educators into future multipliers for TVET-Clubs. The training sessions focus on subjects that are embedded in the curriculum, such as renewable energy sources, climate change education, or computational thinking and electronics. Computational thinking emphasizes Experimento lessons that utilize the Arduino microcontroller in addition to scientific experiments conducted on the Arduino computing platform. This provides young students the opportunity to put computational thinking into practice. Using the curricular content of junior high school science lessons, teachers provide adolescents with activity-based access to STEM and the specifics of how it is used. Knowledge that is gained experientially through classroom experiments remains with the students permanently.

More information about market opportunities for German training providers is available in the current iMOVE Market Study Ghana (German):
https://www.imove-germany.de/static/de/publikationen/iMOVE-Marktstudie_Ghana_2021.pdf

About Siemens Stiftung

As a nonprofit foundation, we promote sustainable social development, which is crucially dependent on access to basic services, high-quality education, and an understanding of culture. To this effect, our project work supports people in taking the initiative to responsibly address current challenges. Together with partners, we develop and implement solutions and programs to support this effort, with technological and social innovation playing a central role. Our actions are impact-oriented and conducted in a transparent manner.

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