



Objective



Many science teachers in Kenya have limited access to technology, which may pose some challenges within their classrooms from time to time. This technology gap might cause challenges within the science classroom, which highlights the need for improved access to digital resources to supplement both teaching and learning.

Approach



The GaiaXus system consists of a robust sensor to assess common water quality

parameters. It also features a companion App and a web portal. The web portal holds data, allowing teachers to develop educational content and display data on maps for their students. For this project, GaiaXus partnered with KenyaConnect, a nonprofit organization that works to improve the health, education, and well-being of students and teachers in rural Kenya. GaiaXus provided water quality monitoring kits to Kenyan teachers, who, after training, worked together to integrate the sensors into their curriculum. Using an investigative approach, students explored their local environment, collected water samples from nearby ponds, wells, and rivers. They then compared the water quality measurements using the GaiaXus system. This hands-on experience sparked student curiosity and led to insightful classroom discussions. Teachers guided students through data analysis by comparing the samples, deepening their understanding of environmental science and data analysis.

Results

"The students thoroughly enjoyed the experience. They appreciated the opportunity to work with advanced scientific equipment and found the process of calibrating and using the GaiaXus water device instrument both engaging and informative. The hands-on nature of the experiment helped them better understand the theoretical concepts discussed in class. Students expressed excitement about the real-world applications

GaiaXus

of the skills they learned and showed interest in conducting further experiments with different water sources. Overall, the practical experience significantly boosted their enthusiasm for environmental science." Mr. Mumo

Through this project, students gained a deeper understanding of their environment, uncovering more than they initially expected. One significant finding was the unexpectedly high salinity of the well near their school, which raised concerns about the quality of their drinking water. This discovery not only surprised the students but also opened discussions about local water conditions and the importance of monitoring environmental factors. The experience highlighted the value of hands-on learning, encouraging students to critically engage with the world around them and apply scientific inquiry to real-life issues.

"My students were excited to test water from different sources using the GaiaXus water testing kit. The students mentioned that testing water salinity would be helpful as it could help them choose the water to use for washing clothes and cooking since less saline water uses less soap and less time to cook food." Mr. Musyimi Wakaela

Discussion



The introduction of GaiaXus sensors and tablets enhanced science education in Kenyan classrooms. By closing the technology gap, students were able to engage in hands-on experiments that made complex concepts more accessible and exciting, particularly when exploring topics like water salinity.

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About GaiaXus



GaiaXus Learning Systems is a Maryland-based company developing education tools for environmental STEM education. All presented projects and information are based on pre-released prototypes. To contact the company, visit gaiaxus.com or email info@gaiaxus.com.



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