

# KING ABDULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

## Empowering Scientific Literacy for Sustainability: A Collaborative Model Between Universities, Schools, NGOs, and IGOs

King Abdullah University of Science and Technology (KAUST) is a young and vibrant graduate university in Saudi Arabia increasingly recognized for its research and innovation in pressing sustainability topics such as sustainable water management, renewable and clean energy, food security, and environmental conservation, thus embodying the essence of science that serves humanity and the planet.

Aligning with its mission to enhance literacy for sustainable development, the KAUST Office of Sustainability (OS) is driving a meaningful collaborative effort with non-profit Frontiers for Young Minds (FYM) and the United Nations Development Programme (UNDP) to deliver new and engaging educational materials to promote the importance of science for humanity while raising awareness about the UN Sustainable Development Goals (SDGs). The “SDG Collection: How Science Can Help Us To Achieve The Sustainable Development Goals” is a collection of articles about research being carried out at KAUST and hosted in the journal FYM, a pioneering open-access scientific journal edited for, and reviewed by, children.

The journal aims to democratize scientific literacy by involving young readers in the review process of scientific articles written for them, making complex science accessible and engaging to children worldwide. The Collection counts on the endorsement and support of the UNDP, one of the leading UN agencies working to fulfill the SDGs. The

project combines the strengths of academic research and educational outreach, aiming to cultivate scientific literacy with a focus on sustainable development among children. By doing so, The SDG Collection seeks not only to inform but also inspire the next generation to act for a sustainable future.

### Implementation

The FYM journal aims to simplify complex scientific research for young learners, effectively narrowing current scientific literacy gaps. Utilizing a dedicated platform, articles undergo review by children aged 8 to 15 under the guidance of researchers, ensuring content is both accessible and engaging. The journal partners with esteemed organizations and features collections authored by Nobel Laureates, showcasing distinguished research in a format understandable to children.

KAUST has a history of engagement with FYM, editing collections, and sponsoring the journal's Arabic translation. To leverage such engagement, the OS proposed a new SDG Collection in a collaboration agreement with the UNDP office in Saudi Arabia, aimed at enhancing sustainability education. The project began with KAUST's OS and the KAUST Enrichment for Youth (KEY) team securing 17 manuscript submissions, one for each SDG. This involved recruiting guest editors from KAUST's diverse pool of experts and arranging stakeholder meetings to secure article authors.

Diverging from FYM's virtual review process, KEY and OS worked with The KAUST School (TKS) to set up an afterschool club where students



actively engage in person in the peer review process. Moreover, students expand their participation through SDG-related research and by preparing interviews with the article authors in KAUST's recording studios, lending a professional touch to their role as interviewers. The sessions allow for interactive and accessible discussions on scientific research.

This direct interaction between researchers and children demystifies the figure of the scientist, presenting them as contemporary and relatable people who are sources of knowledge and inspiration rather than distant experts in seemingly unachievable roles. It also ignites students' interest in science by exposing them to real-world problem solvers of sustainable development challenges, fostering a sense of proximity and action that textbooks alone cannot achieve. Secondly, it enables researchers to refine their communication skills, translating complex ideas into engaging stories that resonate with broader audiences.

The traditional FYM model transforms students from passive recipients to active participants in scientific discourse and contributors to a global educational resource. Through The SDG Collection, KAUST aims to expand the model with extra audiovisual resources, broadening both scientific literacy and SDG awareness while instilling a sense of achievement in the students, as they become contributors to the

dissemination of the global sustainable development agenda among their peers worldwide.

## Outcomes and Future Directions

Since launching, The SDG Collection has seen significant engagement from students, highlighting its success in making sustainability science engaging and relevant. Through review sessions and author interviews, it has already enhanced scientific understanding and spurred conversations on sustainability at a local level. As more manuscripts are submitted, we plan to broaden the collection's impact by hosting live review events with multiple schools and creating a national dialogue platform on the SDGs, promoting community and responsibility among youth. Additionally, the contemplation of a Volume 2 of The SDG Collection opens up possibilities for global collaboration, inviting contributions from researchers worldwide to enrich the collection and further its reach. The initiative showcases how higher education institutions can extend their influence beyond academia by participating in educational collaborations that bridge scientific research with sustainable development, acting as a model for other university-driven efforts to influence broader societal change.

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