

## EPI•STEM SCIENCE EdNeT

### Science Education Reading Group – Along The West Coast

#### Research Seminar by Deirdre Hogan

#### *‘Addressing Education for Sustainable Development in the Teaching of Science: The Case of a Biological Sciences Teacher Education Program’*

Tuesday 19th April at 4pm, EPI•STEM Lecture Room, A1065, Main Building

#### Biography:

Deirdre Hogan is co-ordinator of the Ubuntu Network, an Irish Aid (Ministry of Foreign Affairs) funded project that supports the integration of Global Citizenship Education into post primary Initial Teacher Education in Ireland. She is based in the School of Education at the University of Limerick.

Deirdre holds a Bachelor Degree in Science Education and a Higher Diploma in Systems Analysis. She has completed a Master of Education by research focusing on the Nature of Science as an academic discipline and implications for integrating Education for Sustainable Development into its teaching.

She is a member of the Irish National Advisory Committee on Education for Sustainable Development, sits on the World Wise Global Schools Executive panel and the Irish Development Education Association Formal Education working group.

Her research interests include Education for Sustainable Development in the context of science education, and innovative pedagogies for engaging young people in education for change.



#### Abstract:

Education plays a key role in ensuring that all learners are equipped with the knowledge and skills needed to promote sustainable development. The United Nations Sustainable Development Goals (SDG) set out the key challenges of our time with targets to protect the planet, end poverty, and improve the prospects of all people by 2030. As global challenges including access to healthcare and climate change escalate, the need for action is even more pressing. Education is an enabler of change and presents opportunities to support learners to explore how they can participate in transformative education experiences that focus on building a more sustainable world. Science education provides unique opportunities to explore sustainability given the nature of the discipline, the knowledge it reflects, and its focus on inquiry based pedagogical approaches. This study explores the Nature of Science as an academic discipline, as it is lived and perceived within the teaching of an undergraduate Science Education (biological sciences) program in a Higher Education Institution (HEI) and its capacity for the integration of Education for Sustainable Development (ESD). An ethnographic informed research design was adopted to document the social culture, perspectives, and practices inherent in the educational setting. Semi-structured interviews were conducted with academics and tutors from the HEI's Science Department who contribute to the program ( $n = 11$ ). Focus groups were held with pre-service teachers enrolled on the program ( $n = 21$ ) and observations from lectures, laboratory sessions, and field trips were carried out. Findings arising from analysis of data point to a strong link between science and society in science education, and the need for learners to develop critical scientific literacy that enables them to meaningfully navigate the multiple perspectives presented in media and public debates relating to sustainability issues. Findings suggest that while sustainability themes permeated some modules in the program, the emphasis was on imparting hard, technical knowledge rather than allowing for the critical exploration of issues. Results also highlight some discipline specific challenges to adopting discursive pedagogical approaches in the science education program. Some ways of understanding these findings are explored.

Link to the paper: <https://www.mdpi.com/2071-1050/13/21/12028> (D. Hogan & J.O'Flaherty)

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