

Science learning across time and settings – a learning ecosystem approach

Research repeatedly highlights the prevalence and significance of science learning in informal designed environments such as museums, as well as in unstructured ones such as family dinners (Tal & Dierking, 2014). Scholars suggested viewing learning as taking place across an ecosystem which provides resources dynamically interacting to shape learning (Bell et al., 2009; Dierking et al., 2003; Shaby et al., 2021). Families play a crucial role in science learning ecosystems (Bricker & Bell, 2014), varying in the resources available to them in different settings and the ways they leverage them (Archer et al., 2016).

Family engagement with science facilitates disciplinary talk, supports scientific thinking, and scaffolds understanding of science, thus playing a critical role in children's development of science knowledge, skills, interest, and identity (Calabrese Barton & Tan, 2009).

Family-based science learning involves unique characteristics, such as intergeneration relationships, serendipity, shared history, and continuity, that need to be better conceptualized and require adjusted methodologies.

In this talk, I present my research on science family learning using a learning ecosystem approach and the concept of resources use and appropriation to explore family learning across different contexts and over time. I use video and audio recorded observations for macro and micro interaction analysis. Furthermore, I also analyse the role of emotions within science family engagements using EDA (Electro Dermal Activity) measures to capture real-time emotional engagement.