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# International Research Symposium

## Methodologies for Investigating and Fostering Plant Awareness

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Austrian Educational Competence Centre Biology (AECC Biology), University of Vienna, Austria

### Workshop 3:

#### Conceptualising and assessing plant awareness

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#### Aims of this workshop:

- Develop a shared understanding of plant awareness as a concept, the ways in which plant awareness has been measured to date, and the most recent developments in research;
- Examine one measurement tool in depth (Pany et al. 2022; Pany et al. 2023), including (1) how it was developed and its overall aims, (2) the preliminary results of an expert-led validation of the instrument, using the Delphi technique, (3) a supplementary tool for visual perception;
- Consider the implications of the research instruments for both developing our understanding of plant awareness and their role in evaluating educational interventions.

#### Research Questions

- (1) What are the characteristics of an effective research instrument for measuring plant awareness and considerations for it?
- (2) What are the strengths and weaknesses of the different measurement tools available, for use in correlational (non-experimental) and experimental research?
- (3) What are the best ways of using these measurement tools in practice, with different audiences?

#### Theoretical background:

Plant awareness describes the acquisition of positive traits towards plants, in contrast to the focus on deficit traits found in most studies (Pany et al., 2022). We propose that it encompasses attitude, a stable evaluation of a phenomenon based on beliefs, emotions, past behaviors, and a visual perception or attentional component (Maio et al., 2018). Attitude includes perceived importance, appreciation, and preference for plants. Perceptual attention refers to focusing mental resources on plants compared to other elements in the environment. Focused attention, along with positive affect and motivation, leads to interest in plants (Hidi, Renninger & Krapp, 2004; Pany et al., 2019). Negative attitudes and low interest arise from misconceptions that plants are 'less alive' than animals and underestimating their importance (Yorek et al., 2009; Stagg, 2020; Amprazis et al., 2021).

Many studies have explored these domains individually, using self-report instruments (series of statements based on rating scales e.g. Stagg, 2020) or cognitive tests (e.g., visual perception: Balas & Momsen, 2014; categorization: Yorek et al., 2009; knowledge Stagg & Verde, 2015). However, for a robust and comprehensive understanding of plant awareness, we need measurement tools that capture multiple dimensions of the construct, in combination with tests of internal consistency and structural validity. Measurement tools that fulfil these criteria include the Plant Attitude Questionnaire (Fančovičová & Prokop, 2010), the Plant Awareness Disparity Index (Parsley et al. 2022), and the Plant Awareness measurement scale (Pany et al. 2022). Qualitative methods also play a role, for example, interviews can contribute to both the development and validation of the quantitative instruments (Amprazis et al. 2021; Parsley et al. 2022). Research instruments also need to be tested in the context of intervention-based research with learners, to ensure that they function well as evaluation tools.

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