

Missions for sustainability: New approaches for science and society

Session abstract

Template for session organizers

The session abstracts should provide a brief overview of the session scope and design and a **synthesis of the key discussion points and results** of each session. They should always position the issues addressed in **relation to the main themes** of the conference.

The session abstracts will serve to prepare a **conference documentation** for dissemination to the interested general public (PDF). They may equally be used as a basis for producing a summary in other formats (multimedia). In addition, these abstracts will inform a **position paper** on mission-oriented research and innovation, prepared by the Leibniz research network after the event.

Please do not attribute statements to individual participants (results-oriented abstract)

Please use accessible language / English only

Total length: ~1500 words

Session organizer(s)

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Session title

Education and Learning in the context of Sustainability

Session description (~500 words)

The session focused on the foundations of sustainability and reflected the aspects of learning and education as potential approaches for transfer in view to sustainability.

The session was composed of three presentations and a subsequent discussion. Thereby, the session drew on exemplary practice and research from educational and research institutions as well as from cultural institutions with associated educational mandates within the Leibniz association and its networks.

The first presentation, given by Willi Xylander, Professor at the Technical University Dresden and Director of the Naturkunde Museum in Görlitz was titled: *Museums educational formats for sustainability. Insights from visitor and impact research* provided information on empirical results for sustainable learning opportunities in museums by addressing topics of nature and environment as well as nutrition and consumers behavior (i.e. Xylander 2020a,b). Sustainability items addressed in this context are for ex. biodiversity, loss of biodiversity but also monitoring activities by citizen scientists. Empirical research projects on visitor's awareness on sustainability in contexts with museum objects (like for ex. a meadow) shows, that the topic sustainability must be clearly addressed by the museum, to get attention on it. Thereby, innovative educational formats like virtual reality animation can raise the awareness and the understanding of visitors of sustainable contexts up to 80 percent. Citizen science projects, which provide valuable data for assessment of biodiversity loss and as such contribute to the awareness raising on sustainability, can be significantly improved by training workshops. Organized learning leads to an improvement of taxonomic skills as well as an increase of interest among the participants compared to non-participants.

The second presentation, held by Franziska Loreit (DIE), was titled: *Temporary Permanence (TemPe) – Innovative and flexible mediation of current relevant topics in permanent exhibitions*. It explained a research project focusing on the aim to develop a prototypical exhibition element to present current discourses and research results in permanent exhibitions by presenting a topic from three perspectives: society; art; and science. Theoretical considerations on pro-environmental behavior within the context of museum visits bind together environmental knowledge and (visitor) experience and build up the theoretical background. Models to be used and operationalized for this kind of research were presented. Within the research project core questions to be discussed and empirically investigated are for ex. how far museum exhibitions can contribute to environmental knowledge, to environmental awareness, to environmental attitudes and to values as well as to environmentally aware behavior / behavioral intentions. The discussion of the empirical results and theoretical models also lead to questions of methodology and scientific methods to investigate the effects of learning offerings on sustainable behavior and changes on attitudes and values.

The third presentation – held by Marion Fleige – was titled: *Learning over the life span in the context of sustainability and its institutional, pedagogical support*. The presentation

widened the view and focused on institutional, pedagogical and anthropological conditions for sustainability over the life span especially in adult learning institutions, backed by a) theoretical insights from (adult) educational theory and anthropology and b) program planning and institutions for the learning of adults and over the lifespan (i.e. Fleige et al. 2018; 2022i.E.). The presentation illustrated that learning over the life span is possible and takes place (from the beginning to late life), and it is beneficial for the participants and their social environment as participant research shows. Learning over the life span means expanding on knowledge and competencies and differentiating them. There is a wide range of benefits and of forms of processing knowledge gained in educational settings. Learning in adulthood, in particular, is crucially bound to personal learning interests that need to be stimulated. – Moreover, as the presentation by Willi Xylander already demonstrated, it may be particularly connected to esthetical experience as intrinsic drivers, and it is biographically relevant: especially in the areas of nature and environment.

The session took place in a hybrid format. The two session organizers who were presenters, too, were on-site in the office of the Leibniz association in Berlin, the third presenter as well as the audience participated online.

Main discussion points and reflections (~500 words)

Sustainability-related learning and transfer to target groups can be realized either through missions and research data of the (educational and cultural) institutions or through educational theory and empirical knowledge about learning over the life span and its anthropological conditions.

Sustainability-related education and learning covers a wide range of target groups, of approaches (scientifically driven, institutionally framed, based on personal convictions and knowledge of pedagogues etc.); it includes a range of learning locations and didactical settings as well as degrees of formalization: formal, non-formal (both classroom-based and for instance in learning stations at museums) and informal learning opportunities and educational offerings; and contents. It shows to be beneficial and effective in many different ways, as both the research on the “Wider Benefits of Lifelong”- research (Manninen et al. 2014) imply and research from the Senckenberg museum in Görlitz so far shows.

Main results and conclusions (~500 words)

Sustainability-related education and learning must be conceptualized as lifelong learning process (intergenerational) as well as life wide learning process (involving real contexts and authentic settings) – leaning back on adult educational theory and anthropology and

backed by empirical results on adult education and learning as well as programming and didactics.

Sustainability-related education and learning needs educational offerings, mediation forms and formats as well as methods on a concrete level. This is carried out by educational and cultural institutions (with an associated educational mandate) etc. However, sustainability-related education and learning should be tied to greater educational programs and policy strategies (as in ESD). It needs international cooperation and global awareness.

Open questions for further discussion are:

- How do the results of sustainability-related learning affect the “missions” themselves?
- How could "social learning" (as a conference theme) be operationalized as a “Mission” and how does it relate to sustainability education? (In the first place, the “Mission” concept calls for ‘social learning’ in order to address learning processes of individuals and social groups so that change may become possible.)
- How does organizational learning contribute to sustainability (learning)?
- Which educational and social science questions can be connected here?

(To some of these issues, a planned presentation by *DVV International, Institut für Internationale Zusammenarbeit des Deutschen Volkshochschul-Verbandes e. V. (DVV)* might have provided first answers but was missing from the agenda due to illness. Topics as planned would have been: “Global Learning” – Participants experience the interconnections between everyday life and global interconnections” and “Live what we teach, teach what we live – How to align the whole educational institution according to sustainability criteria”.)