

**COMMUNICATION**

## Professionalization for Education for Sustainable Development through Action Research using the Example of a University Course

**Franz Rauch** Alpen-Adria-University Klagenfurt, Austria  
franz.rauch@aau.at

The interdisciplinary character as well as the current and future relevance of the sustainability debate with all its inherent dilemmas and uncertainties, can provide fertile ground for educational innovation. Against this background, a team at the University of Klagenfurt, together with FORUM Umweltbildung and colleagues at teacher training colleges in Austria, designed the four-semester in-service course "BINE - Education for Sustainable Development - Innovations in Education". The aim of BINE is that the participants deal with the topics of sustainable development (SD) and education for sustainable development (ESD) as a learning community. An important element of this is the systematic reflection of innovations in their own practice within the framework of an action research study. The action research process provides a learning basis to promote the concepts of ESD as well as research and implementation skills of the participants. While sustainability topics are used as a vehicle for emancipatory education on the one hand, they are intended to trigger concrete sustainable social development processes on the other. This implies a great challenge, but also holds considerable potential for educational processes. With regard to sustainable development, education in the context of ESD means addressing questions in concrete fields of action about how the future can be shaped sustainably. This includes precise observation, analysis, evaluation and cooperative design of a concrete situations. Reflective action competence - and not blind action or unreflective action patterns - is a main goal of learning (Rauch & Pfaffenwimmer 2020).

**Keywords:** Action Research; Education for Sustainable Development; Vignettes

♦Received 21 September 2022 ♦Accepted 28 November 2022

### Education for Sustainable Development Meets Action Research

Education for sustainable development corresponds strongly with the principles of action research. Both concepts define a reflexive shaping of society as a target perspective. Areas where action research has been applied since the 1970s include participatory approaches in regional development projects. Knowledge, development and empowerment are three essential categories to which both action research and education for sustainable development refer. The central category of reference in action research and education for sustainable development can be seen in a concept of learning that unfolds in an autonomous, networked, and inquiry-reflective

engagement with the world. Learners explore and reflect on their own goals, perspectives, and strategies for action, and are empowered to shape their lifeworld in a reflected and participatory way. Theory and practice are seen as interwoven and interrelated (Radits, Rauch, Soukup-Altrichter & Steiner 2015).

### The BINE Course

The BINE course addresses processes of social change (globalization, mechanization, rationalization, flexibilization, etc.) and discusses their impact on the organization and design of learning and educational processes. Course participants acquire the know-how to deal with these societal challenges, to understand and reflect on change processes and to integrate them into their daily pedagogical work or to anchor education for sustainable development in their practice.

BINE is a four-semester in-service training course for teachers and teacher educators. The course includes five three- to four-day seminars, a writing workshop, and five working group meetings. The seminars are held as blocks at different locations in Austria. The content is conveyed through lectures and inputs by the seminar leaders or by guest speakers proven experts from the fields of education, politics, social sciences and economics. Working groups primarily serve the exchange of experiences, literature work and the support of research work. They are organized as regional working groups and are led by a member of the course leadership team. In an action research study, participants develop and investigate a project from their own practice. The work is supervised by a member of the leading team. So far, the university course BINE has produced action research studies on various fields of development in schools, teacher education colleges and in the informal education sector. The development fields designed and investigated are broad and range from questions of one's own professionalization as a subject teacher to organizational development studies in which curricula are systematically reflected with regard to Education for Sustainable Development (Rauch, Steiner & Kurz 2021).

### Action Research Vignettes

In a study, a teacher investigates the state of education for sustainable development at an Austrian vocational technical secondary upper school. Using qualitative and quantitative methods (interviews and questionnaires), the author investigates what teachers and students at this school perceive as the most promising way to implement ESD and compares this with international goals and findings. The results of the study offer concrete measures and necessary structural developments to gain a new perspective on education in the context of major challenges (e.g. climate change). The author discusses the potential and limitations of different models for implementing ESD in the curriculum, such as individual subjects and cross-curricular approaches. This includes new roles and tasks for relevant educational authorities, school administrators, teacher teams, students, school networks, universities and colleges. Supported by this study, a

working group led by the author of the study was established in the Austrian Ministry of Education, Science and Research to discuss these issues and develop a concept for implementing ESD in technical schools (Postner 2019).

The second example relates to the teacher training program for elementary school teachers at a university of education (Hesse 2018). Based on a review of the literature on educational goals related to ESD in elementary school, the author designs a course concept that integrates topics, didactic strategies, and methods in the field of ESD. The goals of the course are the development of learning materials and learning settings by the students. Action research focuses on self-regulated learning processes and open learning designs. Therefore, as a teacher educator, the author experiments with self-assessment instruments and tools in managing individual work and learning processes. In a broader context, the learning design presented introduces students to an action research-based teaching approach that combines project-based learning with systematic reflection on learning processes. Thus, the project addresses core competencies in teacher education that deal with sustainable development issues.

Helga Mayr (2019) writes in her study that transforming society in line with the UN Sustainable Development Goals (SDG) requires new attitudes, ways of thinking and working, competencies, and commitment. Education plays a key role in sensitization, awareness raising and competence development. She used the design thinking method as an innovative way of thinking and working that allows people to work together and to develop an understanding of the current underlying problem or challenge in a creative, clearly structured process with the goal to develop solutions. The design thinking process leads teams through six distinct phases in iterative loops. The first phase (understanding) serves to stake out the problem space, which is followed by the observation phase, in which empathy for users and those affected is built up. In the third phase, the insights gained are condensed in order to generate a multitude of possible solutions in the team's idea generation phase. The subsequent creation of "prototypes" serves to develop concrete solutions, which are then piloted. One possible method is a design jam, where people come together to work on solving challenges. This study is dedicated to the investigation of a Global Goals Design Jam in which 40 students from a total of six upper secondary schools participated. They set themselves the challenge of making the district of Kufstein (Tyrol/Austria) the "most innovative and sustainable region in the world". Observations and group interviews with students had shown that the term "sustainable development" is primarily associated with "environment or environmental protection" and "lifestyles and consumption habits". The central challenges are seen in these fields of action and, in the context of sustainable development of the region with traffic as an important topic. The data shows that students are aware that there is a need for action. However, they partly have the feeling that they cannot (yet) contribute substantially due to their age and status. The experience they had in the Global Goals Design Jam improved their sense of self-efficacy.

## Summary

Evaluation results and experiences in the BINE course show that systematic data collection and reflection in the context of action research projects and writing a study are seen as challenging but conducive to learning. Awareness of the uncertainties and dilemmas associated with sustainable development and ESD is raised. Resources on an intellectual level (e.g. information, methodological inputs) as well as on an emotional level (e.g., support and empowerment by critical friends) provide support and orientation. Both levels complement each other and provide a framework for holistic and integrated learning processes. It seems that a balance of irritation and support as elements of a didactic design provide space for deepening reflections and sustainable development processes.

## References

- Hesse, A. (2018). Bildung für Nachhaltige Entwicklung in der Primarstufenausbildung. Konzeption und Evaluierung einer Lehrveranstaltung an der Pädagogischen Hochschule [Education for sustainable development in primary education. Concept and evaluation of a course at a university of education]. In: F. Radits (Ed.), *Bildung für Nachhaltige Entwicklung in der Lehrer- und Lehrerinnenfortbildung (Teil 2). Rational und Studien aus dem Universitätslehrgang BiNE 2016-2018. Open Online Journal for Research and Education*, special issue 16. <https://journal.ph-noe.ac.at/index.php/resource/article/view/706>. (in German)
- Mayr, H. (2019). Global Goals Design Jam. In F. Radits (Ed.), *Bildung für Nachhaltige Entwicklung in der Lehrer- und Lehrerinnenfortbildung (Teil 2). Rational und Studien aus dem Universitätslehrgang BiNE 2016-2018. Open Online Journal for Research and Education*, special issue 16. <https://journal.ph-noe.ac.at/index.php/resource/article/view/708>. (in German)
- Postner, A. (2019). Bildung für Nachhaltige Entwicklung – Flächendeckend oder Zufällig? [Education for sustainable development – Area wide or on occasion?]. In F. Radits (Ed.), *Bildung für Nachhaltige Entwicklung in der Lehrer- und Lehrerinnenfortbildung (Teil 2). Rational und Studien aus dem Universitätslehrgang BiNE 2016-2018. Open Online Journal for Research and Education*, special issue 16. <https://journal.ph-noe.ac.at/index.php/resource/article/view/707>. (in German)
- Radits, F., Rauch, F., Soukup-Altrichter, K. & Steiner, R. (2015). Aktionsforschung trifft Bildung für Nachhaltige Entwicklung und verändert Pädagogische Hochschulen. Zum Konzept und zu den Ergebnissen des BINE- Lehrgangs 2012-2014 [Actions research meets education for sustainable development and changes universities of education. On the concept and about the results of the BINE-course 2012-2014]. *Open Online Journal for Research and Education*, Special issue 3. <https://journal.ph-noe.ac.at/index.php/resource/article/view/224>. (in German)
- Rauch, F., Steiner, R. & Kurz, P. (2021). Case study university course "Education for Sustainable development – Innovations in Teachers Education and Schools" (BINE): Action research and climate change. *Educational Action Research*. Online first. <https://www.tandfonline.com/doi/full/10.1080/09650792.2021.1971098>.
- Rauch, F. & Pfaffenwimmer, G. (2020). The Austrian ECOLOG-Schools Programme – Networking for environmental and sustainability education. In A. Gough, J. Chi Kin Lee & E. Po Keung Tsang (eds.), *Green schools globally: Stories of impact for sustainable Development* (pp. 85-102). Dordrecht: Springer.

