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Environmental and Sustainability Education in Austria

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1. Introduction

In this chapter we trace the development in Austria in terms of education and sustainable development. We start by giving an overview about Austrian culture, political situation and its education system, before moving into the development of Environmental and Sustainability Education (ESE). From a historical perspective, environmental education found its way into the school system in the 1970s. In the following years the discourse turned mainly to global learning, political education, ecological education and peace education. In the 1990s, education for sustainable development found its way into the debate based on the first World Summit in Rio and was anchored in the context of environmental education and global citizenship education. A typical element for Austria is the connection between ESE and action research, primarily supported by the influential Project ENSI (Environment and School Initiatives). In the later chapters, the current situation and future trends and issues are presented. The current development is supported by the Agenda 2030 and especially by SDG 4. New Austrian-wide projects and platforms emerge based on established initiatives, structures and networks. However, challenges of the Austrian education system like equal education opportunities for all population groups still remain.

2. On the Austrian education system and its political, economic, cultural and social contexts and conditions

To understand the philosophy behind and the development of ESE in Austria, we give a brief overview of the historical, socio-economic and cultural conditions, as well as the development of the educational system of the country.

The republic of Austria is a democratic state situated in Central Europe. Currently, Austria has approximately 8.9 million inhabitants. Christianity (Roman Catholic) is the predominant religion. Austria is a welfare state with a well-established health system. Austria belongs to the richest countries in the world in terms of gross domestic product per capita. Austria has a well-developed social market economy and a high standard of living. Respectively, the employment rate is 71% in 2020 (Statistik Austria 2020a). Austria has a very high literacy rate, with 99%. Over the past years, the educational level of the population increased. In the 5,685 schools, over 1 million pupils are educated (Statistik Austria 2020a).

Hofstede (2011) defines six cultural dimensions that give an average value-orientation of the world cultures. Accordingly, Austria can be described as an independent country with decentralized power structures and a focus on equal rights for all inhabitants (power distance dimension). With an

individualistic (individualism dimension), masculine and highly success-oriented society (masculinity dimension), Austrians tend to pursue rigid rules and norms and an inner urge to be busy and work hard (uncertainty dimension). Furthermore, Austrians possess a pragmatic culture that easily adapts traditions to changed conditions and has a strong propensity to save, invest and achieve results (long term orientation dimension). Austrians put emphasis on realizing their desires and enjoying life and leisure time, furthermore they possess a positive attitude and have a tendency towards optimism (indulgence dimension) (Hofstede Centre 2020).

The cultural values described above, developed over time and influenced Austrian's educational philosophy. There was a shift from a strong military orientation ("masculine") to a more humanistic and "bel esprit" oriented ("feminine") system. The roots of compulsory schooling lie in Empress Maria Theresa's reign, who initiated many reforms that still shape Austria today. In 1774, she introduced general compulsory education. During that time, the purpose of education was to strengthen the Austrian Empire and its military power including technologies, as well as the economy and administration. Although traces of it can still be seen today, the focus is enhanced towards the development of *"moral and social values, as well as the values of the beautiful, the good and the true"* (SchOG §2). Furthermore, education should equip youth with the required knowledge and skills they need for their life and their future profession (ibid.).

The compulsory education in Austria comprises nine school years, public schools are free of charge. Pupils' performance is assessed by using grades from 1 (very good) to 5 (not sufficient). In contrast to other OECD countries, pupils have to repeat a school year when they fail (Pongratz 2010). Already after four years of common primary education, pupils have to choose between a lower secondary school or a secondary academic school (another four years). To complete the nine years of compulsory education, pupils can attend a pre-vocational school. For achieving the A-levels (Matura) they have to attend four to five years of upper secondary school (BMBWF; SchOG §3). The structure of the Austrian educational system is still strongly hierarchical and strongly interwoven with politics. The school system is regulated at federal level, the ministry of education (BMBWF) and the provincial school authorities are responsible for the administration and supervision of schools.

For the past decades, many efforts have been made to reform the educational system (Posch and Altrichter 1993). Some of the latest central reforms are the introduction of all-day schools additionally to the traditional half-day ones, the focus on competence-oriented instruction, enhanced autonomy for schools, and the update of curricula. All in all, the access to education is excellent, as education has been compulsory for centuries and even the access to Austrian universities is free for most fields of study and, at the moment, without tuition fees. However, entrance exams have been introduced in recent years for certain fields of study.

Nevertheless, at present, Austria's school system faces several problems. Austria has the highest expenditure on education compared to other EU countries. Despite of this, Austrian students perform averagely in the international studies of PISA (Programme for International Student Assessment) and TIMSS (Trends in International Mathematics and Science Study) (Bruneforth et al. 2012, p. 6). Additionally, Austrian society, as many Western societies, struggles with a kind of

students' and young people's oversaturation with education and other outcomes of high-standard societies.

The latest reports, such as the indicator report by Statistics Austria (Statistik Austria 2020b), refers to positive developments in high-quality education in Austria in recent years. The development of the educational level in the last decades shows a general increase in the educational level of the Austrian population. Overall, the national employability index is at a relatively constant, high level of 88.6% recently - also due to the vocational school system in Austria - and thus above the EU-28 value of 81.7%. However, it must be noted that there is still considerable development potential in numerous areas, which is briefly outlined below and described in more detail in section six.

As the National Education Report 2018 states, equality of opportunity and participation are not guaranteed in Austria. There is a clear need for action, for example, in the systematic access to pre-school support, which is seen as the cornerstone for later educational success. The Austrian educational landscape is characterized by high educational disparities. (Schober 2019). In an international comparison, Austria shows a relatively high degree of social reproduction of educational inequalities. Accordingly, the socio-economic status has a particularly strong effect on participation in education and learning as well as on economic and social results. Young people who do not come from an academic household are significantly less likely to complete a degree (BMBWF and bifeb 2020). Similarly, the current Austrian National Education Report 2018, Volume 1, indicates that only one third of the social inequalities in the choice of secondary school level can be explained by differences in performance. Children of academics transfer to upper secondary school more often with the same performance (Oberwimmer et al. 2019).

3. Historical background and the development of environmental and sustainability education in Austria

We will start out with a brief historical overview of the concept of environmental education as discussed in the debate on education for sustainable development. The term environmental education (EE) has been used in German literature since the 1960s. From its outset, EE was a policy instrument for finding long-term solutions to existing environmental problems (Klenk 1987). The prevalent issues at the time were waste separation, recycling, saving water and energy, and using burlap and glass instead of plastics. The 1990s added new perspectives such as environmental ethics, time ecology, art and the environment, environmental education and the media and landscape perception (Rauch and Steiner 2006).

At the level of legislative requirements, the 1979 decree on EE provided an impetus for anchoring EE in the Austrian system of education. It became a principle of instruction in all subjects at all secondary schools (catering to the 10-19 year age bracket). Together with the decree on political education, a fairly innovative legal framework was enacted. This was aimed at developing eco-political action competence (Breiting and Mogensen 1999) and at integrating know-how, reflection, and action, in school-based learning and teaching processes. In 1992 another supporting component was added: The decree on project teaching. According to this decree, teachers are to

carry out larger action-oriented and participatory school projects in all schools and subjects. Environmental education topics were more than suitable as subjects for this form of teaching, so the two decrees were mutually supportive (Rauch and Steiner 2006).

Environmental issues gradually transformed into environmental projects, conducted partly on an interdisciplinary, action-oriented basis and in cooperation with external organisations. Nature experience, inspired mainly by the writings of Joseph Cornell (1979), became a popular antipode to ecological doomsday pedagogy. The term 'environment' was to carry positive connotations, and the enjoyment of pristine nature should be an encouragement to protect the environment without a moralizing aspect. Environmental education projects, however, frequently remained on an activist level and failed to reflect on impacts and underlying causes with the result that the learning processes remained superficial (Lieschke 1993).

3.1 From Development-Policy Education to Global Learning and Global Citizenship Education

Global learning may be regarded as the second main current in education for sustainable development in Austria. The development of global learning was triggered by the public relations activities on 'third-world issues' in the 1960s and 1970s, largely non-political then, in which the churches raised funds for aid projects. The above-mentioned decree on 'Political education at schools' enacted in 1987, also boosted the development policy work. It was to promote awareness of what it means to be Austrian, paired with an openness to the world, a readiness to stand up for human rights, overcome prejudices, and champion the cause of the disadvantaged. This occasion prompted organisations such as the Austrian Latin-America Institute, the Austrian Commission for UNESCO, the working party on schools at the Youth Council for Development Aid (which was later to form the core of the Austrian Information Service for Development Policy, ÖIE) to engage in in-service education of teachers. The development-policy educational work of the 1980s developed from a cognitive ideological critique in the 1970s to practical educational solutions in which affective elements started to play an ever-growing role (Hartmeyer 2001).

In the 1990s, development-policy education was gradually replaced by the concept of global learning. With the globalisation of all walks of life and the emergence of the idea of global citizenship, education was faced with new challenges. "The interfaces between world-wide equity, multicultural society, global environmental issues, the peace issue, and the limits of growth in industrialized countries are all in the centre of global learning" (Hartmeyer 2001, 37). The concept of global learning in Austria took on another role. More than conveying factual knowledge, it set the main focus on a critical approach to concerns, interests, and experiences. The idea was, that Global learning *per se* cannot serve to create a better world but encourages self-determination in a global context (Grobbaauer and Wintersteiner 2019).

When the concept of Education for Sustainable Development (ESD) emerged, proponents of both concepts (EE and global learning) claimed to be the legitimate pioneers and shapers of this new approach. This led in part to tensions and intense discussions regarding the pioneering role and opinion leadership. Here the concept of SDGs brought a valuable relaxation, as both approaches were integrated, especially in SDG 4.7, where ESD, sustainable lifestyles, human rights and global citizenship are explicitly mentioned.

Since the 1992 Earth Summit in Rio, the preferred policy discourse has shifted from EE to a broader vision: ESD. As a result, apart from ecological issues (consumption of resources, pollution of the environment, demographic explosion etc.) EE, on a normative level, was now determined by the idea of fair global distribution, forming a new mix of ecology, economy, as well as social, political and ethical dimensions (de Haan and Harenberg 1999).

The following table gives an overview of the ESE developments in Austria since the mid 1990s. Some of the projects will be described in more detail below.

Table 1: Overview of the ESE-developments in Austria (extended from Rauch and Pfaffenwimmer 2020).

	ESD-Implementation and relevant legal developments	ECO School Network (ECOLOG)	Teacher Education	Higher Education	International initiatives
1995	Education Support Fund	Start of ECO-school concept			ENSI decision on focus topics: ECO-schools, teacher education, (IT)-networking and quality assurance.
1996		Start of ECO-school pilot phase (1996–1998)			
1997			ENITE-research project (Environmental Education in Teacher Education)		
1998					
1999		Concept for ECO-school network			
2000					
2001		Start of ECO-school network	ENITE-network		
2002	ESD platform in Ministry of Education (2002–2008)	<i>National Environmental Performance Award</i> for Schools and Teacher Training Universities			EU-ENSI-SEED-network project (2002–2005)
2003					
2004			First national teacher training university course "Innovation in Teacher Education – Education for Sustainable Development" (BINE).		EU-ENSI-CSCT-project (2004–2007)
2005	Vilnius declaration ESD Strategy process (2005–2007) Education Map			International conference "Committing Universities to Sustainable Development"	UNECE Vilnius declaration
2006	ESD Strategy process EU-ESD-Conference		Research project "Competences for Education of Sustainable Development" (KOM-BiNE) (2006–2008).		UNECE evaluation EU Project: FORM-IT - Take Part in Research
2007	UNESCO Award			<i>Sustainability Award</i> established	EU-ENSI-SUPPORT network project (2007–2011)
2008	ESD Strategy decision Austrian Agency for Education for Sustainable Development ("Dekadenbuero")		Second National Teacher Training University Course BINE		
2009					UNECE evaluation
2010		300 ECO-schools	ECO-school-network with teacher training universities		
2011	Legislation on quality management in schools				EU-ENSI-CoDeS-network project (2011–2014)
2012		400 ECO-schools	Third national teacher training university course BINE	Alliance of Sustainable Universities	
2013				Launch: Future lectures	
2014	ESD-Best of Austria Award				
2015	Global Action Programme & Sustainable Development				

	Goals (International initiatives)	
2016		Fourth national teacher training university course BINE
2017	SDGwatch Austria	500 ECO-Schools (ECO-School-Network ECOLOG)
2018		Project UniNetZ (Higher Education)
2019		
2020	Launch of common webpage of ESD and Global Education: www.bildung2030	600 ECO-Schools

3.2 The ENSI Project as an influential factor

Compared with other German-speaking countries, ESE in Austria carries the imprint of the ENSI project) in which school development and research of practice/action research play a key role (<http://www.ensi.org>). In this regard, the link between action research and Education for Sustainable Development is seen in a concept of learning that unfolds in autonomous and cross-linked as well as research-reflective engagement with the world. Thus, the principles of Action Research correspond very well to the educational concept of Education for Sustainable Development, because both define a reflective shaping of society as a target perspective (Rauch and Pfaffenwimmer 2019). In Austria, action research has been firmly established in quality development and assessment for schools since the late 1980s. The main reasons for this are the increasing autonomy of schools and the concomitant issues of on-site quality assessment. In this context, research and development projects as well as theoretical publications in the area of action research fell on fertile ground (Altrichter and Posch 2009, Feldmann et al. 2018). Owing to these favourable conditions, the potential of ENSI could flourish and contribute to general school development (e.g. through studies and further-training schemes).

In 1986, in Austria a team of experienced teachers from different regions and types of schools were chosen and formed the ENSI teacher team co-ordinated by staff at the Ministry of Education and scientifically facilitated by academics from Universities. The teacher team received training in action research to be able to document and publish their innovative work as case studies. The ENSI team has been building a bridge between practice, policy and research for many years until 2017. This team strongly influenced developments of ESE in Austria (Affolter and Varga 2018).

In 2002, Austria submitted and coordinated the ENSI-EU-project "School Development through Environmental Education SEED" (2002-05). (www.ensi.org/projects). Its most influential publication is Quality Criteria for ESD-Schools (Breiting et al. 2005) which has been translated into many languages (Lechner and Rauch 2014). Collaborations between schools and their surrounding communities are regarded as crucial for real development and change in society. Therefore the last project of ENSI, CoDeS (School and Community Cooperation for Sustainable Development) focused on such collaborations by gathering 29 experts of both fields in 17 countries. (https://www.ensi.org/Projects/Our_Projects/CoDeS/)

3.3 The FORUM Environmental Education (FORUM Umweltbildung)

Another major role in ESE in Austria is performed by the FORUM Environmental Education (FORUM EE). As a result of the 1983 international symposium on *The Long-term Development of*

Environmental Policy and Environmental Education in Europe in Vienna, the participants adopted the *Vienna Declaration* (Katzmann 1986). This was the starting signal for the ARGE Umwelterziehung (working group Environmental Education) as a central contact point for environmental education in Austria. The ARGE Umwelterziehung produced media and materials for teaching and organized topic-specific seminars, exhibitions and conferences. A regularly published magazine provided teachers with theoretical and practical articles and was received in the entire German-speaking area. The magazine was replaced in 2012 by an annual yearbook on ESD.

In 1999 the ARGE Umwelterziehung was renamed FORUM Umweltbildung (FORUM Environmental Education – FORUM EE). This was to represent the new orientation in the sense of sustainable development and an opening towards social challenges and the work on visions, learning processes, learning situations and learning methods. The focus was also no longer on conveying the content of sustainable development, but rather on participating in and promoting a new ‘educational culture’.

The FORUM EE is part of an environmental NGO but is financed by contracts with the Ministries of Environment and Education, which also determine most of the content and also outsource programme coordination to the FORUM EE. It coordinates the eco-label for schools and the Environmental Education Fund, as well as the education map, a localization and presentation of ESD initiatives throughout Austria and beyond. The UN Decade Office as the coordinating office for the UN Decade of ESD in Austria (2005 -2014) was also part of the FORUM EE. Between 2016 and 2019, the FORUM EE coordinated the annual awards for projects that were particularly committed to the implementation of the World Action Programme on ESD, the *ESD - best of Austria* award. Together with the ministries, annual themes are defined, for which educational materials are then primarily produced and symposia and conferences are held. One of the tasks of the FORUM EE was and still is to identify, pilot and evaluate current developments in ESE and currently in education 2030. For this reason, the FORUM EE is also repeatedly involved in international education and research projects.

4. Understanding of environmental and sustainability education in the country

Current discussions around ESE in Austria focus on the notions of sustainable development, on environmental education, on global citizenship education (GCED) and international peace as well as civic education, which have sparked debates on the nature of education in general (Rauch and Steiner 2013). The current international United Nations programmes like Sustainable Development Goals (especially goal 4 *Quality Education*) (United Nations 2015) and the 2015 UNESCO Global Action Programme on Education for Sustainable Development (UNESCO 2015) are in line with the discourse in Austria.

In Austria most proponents of ESE regard sustainable development, as a regulatory idea (Kant 1787/1956) similar to the concept of human rights. Such ideas do not determine an object but serve as heuristic structures for reflection. They give direction to research and learning processes. In terms of sustainability, this implies that the contradictions, dilemmas, and conflicting goals inherent in this vision need to be constantly re-negotiated in a process of discourse between participants in each and every concrete situation. This implies a great challenge but also has considerable potential to enhance learning and innovative developments in education (Rauch 2015). A central goal is the

transformation of individuals, organisations and the society. Learning in this sense is understood as transformative “when the learners, integrate and reinterpret knowledge into their own frames and put it into practice in their own lives. Learning is also one mechanism for changing the society and for transforming the society” (Reardon 2010, 9).

Within the project UniNetZ, which links Austrian Higher Education institutions with the Sustainable Development Goals (SDGs), the Position Paper of SDG 4 provides a current conceptualisation of ESE in Austria. In this paper, the concepts of GCED and ESD were related to each other in a participatory process with the goal to foster the implementation of SDG 4 *Good Education for All*. The Position Paper emphasises the responsibility of research and education in order to find solutions, which foster an all-encompassing transformation toward a sustainable future for all. In the age of climate crisis, global inequalities and austerity measures, it is seen as crucial to empower people not only to change their thinking but also to drastically change their actions (UniNetZ SDG 4 2019).

A recent document of UNESCO Austria (Austrian Commission for UNESCO 2019) states that for education to become a real engine of social change, it must be transformative. This kind of pedagogy is characterised through three aspects:

- Transformative learning aims for the transformation of individual perspectives
- Transformative learning is designed as a collective process of awareness development and emancipation (in the sense of Paulo Freire)
- Transformative learning also strives for changes of cultures and structures (of the educational system) that hinder emancipatory learning (Singer-Bodrowski 2016).

5. Implementation of environmental and sustainability education, the Global Action Program (GAP) of ESD and the follow-up programme ‘ESD for 2030’ in the education system of the country

In the previous sections several projects of ESE in Austria have already been introduced. In this section, we will go into more detail, focussing on the first three priority action areas of the GAP.

5.1 Advancing Policy

As described above, the UniNetZ involves major Austrian higher education institutions as well as other stakeholders. The aim of the project is to provide the Austrian government with options on how to implement the SDGs in Austrian Society. Especially the project team working on SDG 4 might have an impact on Austrian educational policy, as will be further explained in the following section (<https://www.uninetz.at/sdgs/sdg-4-hochwertige-bildung/>).

SDG Watch Austria, a platform representing and networking more than 200 civil society and non-profit organizations, makes the implementation and realization of the 2030 Agenda and the UN goals for sustainable development visible as a common concern of civil society organizations. A prominent theme is *Thematic Initiative Education* for promoting SDG 4. The meetings in this section serve to exchange information on political processes, activities and materials. In spring 2019, for instance, this section developed demands for better anchoring the Agenda 2030 in the curricula, that

are currently being drawn up, and sent them to the Federal Minister of Education.

(<https://www.sdgwatch.at/de/>)

5.2 Transforming learning and training environments

The ECOLOG network (Ecologisation of Schools) has played a major role in supporting educators and school leaders into transforming schools towards a more sustainable practice since its founding in the 1990s. In the summer of 1995, the Minister of Education commissioned the ENSI teacher team to design the school network, which after a two-year pilot phase developed into a wider school network, coordinated by the FORUM EE until 2015 and by the Institute of Instructional and School Development at University of Klagenfurt since then. ECOLOG is a national support system with the aim of promoting and integrating an ecological approach into the development of individual schools and attempts were being made to embed the programme in Austria's federal states through regional networks (Rauch and Steiner, 2006). In order to provide support, a network structure involving ECOLOG regional teams in the nine Austrian provinces has been developed; furthermore, a scientific advisory board has been established. Central support is provided by the Ministry of Education and by the Institute of Instructional and School Development at the Alpen-Adria-University, Klagenfurt. Additional support measures are provided by the FORUM EE (an NGO) as well as via seminars for heads and coordinators of ECOLOG network schools, the Education Support Fund for Health Education and Education for Sustainable Development, as well as via the National Environmental Performance Award for Schools and University Colleges of Teacher Education (Rauch and Pfaffenwimmer 2020).

The ECOLOG-school network contributed to the development of pedagogical criteria for 'The Austrian Eco-label for Schools and Teacher Training Colleges' (www.umweltzeichen.at) which has been awarded by the government since 2002. Currently, the network consists of more than 620 institutions, including colleges for teacher education as well as regional school boards (<https://www.oekolog.at/>). Since the 1990ies ECOLOG has proved as reference for other thematic networks in Austria focussing ESD like 'climate alliance schools' (<https://www.klimabuendnis.at/english>), 'climate schools' (<https://klimaschulen.at>, see below) "nature parc schools" (<https://www.naturparke.at/schulen-kindergaerten/schulen/>), UNESCO schools (<https://www.unesco.at/bildung/unesco-schulen/>) and 'healthy schools' (<https://www.gesundeschule.at/>). Between 2013 and 2018 the Austrian Ministry of Education, Department of Environmental Education compiled a list of all Austrian schools which are active members in these thematic networks. 1000 schools are listed, some of them active in different networks. As there are 5.712 schools in Austria, we can state that every sixth school in Austria has a continuous engagement in ESD (Rauch and Pfaffenwimmer 2020).

Another important motor for transforming and ecologizing schools also goes back to an ENSI project – the implementation of the *National Environmental Performance Award* for Schools and University Colleges of Teacher Education. This is a national government-based award to acknowledge top level performance and has been awarded since 2002. About half of the 120 criteria relate to EE and ESD, the school curriculum and school development. The other half refers to technical aspects, such as energy saving. The award is valid for four years, after that the compulsory external evaluation has to be renewed (Rauch and Pfaffenwimmer 2015). Until today, over 100 school have been awarded this Environmental Performance Award, some of them for the fourth time.

Throughout the history of ESE in Austria and especially since the passing of the decree for Environmental Education for Sustainable Development 2014 (Austrian Federal Ministry for Education and Women's Affairs 2014) the engagement in locally relevant educational activities has been a central focus. Partnerships with external agencies and actors have proved as a valuable approach (Lukesch et al. 2009). In the years 2012 – 2014 *School-Community-Collaboration* was a focal topic for the ECOLOG-programme, also contributing to the ENSI-EU-Project CODES (2011-2014). (https://ensi.org/Projects/Our_Projects/CoDeS/) (Rauch and Pfaffenwimmer 2020).

In 2006, the Austrian UNESCO-Commission decided to award projects within the UN Decade Education for Sustainable Development (DESD) that meet the international criteria of ESD. From 2007 to 2014 201 projects of 168 organisations were awarded and documented in four publications of the UNESCO commission as well as in the 'Bildungslandkarte' (Education Landscape) of the FORUM EE (<https://www.bildungslandkarte.at/>).

5.3 Building capacities of educators and trainers

As all the projects and initiatives described above and also below in section 6, depend on teachers who are not only willing to include ESE in their daily educational practices but also have the skills to do so, another important factor in transforming learning environments was and is teacher education. Thus, from 1997 to 2004 the ENITE-project (Environmental Education and ESD in Teacher Education) was carried out by the University of Klagenfurt as a research and development network which supported the development and study of initiatives in teacher education and was inspired by ECOLOG especially at Universities of Teacher Education (Posch et al. 2000, Kyburz-Graber et al. 2003). The main outcome of the ENITE-network so far is the National Teacher Training Course *Innovation in Teacher Education – Education for Sustainable Development* (BINE), offered by the Institute of Instructional and School Development at the University of Klagenfurt in cooperation with Universities of Teacher Education. The four-semester in-service course has run successfully for four times since then (Rauch and Steiner 2015). At the moment the fifth course is being prepared. Since 2006–07 teacher education is involved in a dynamic reform process based on new legislation for teacher training. A positive result of the ENITE-network and the BINE courses is that communication and collaboration and even participation between Universities of Teacher Education and the ECOLOG network has been enhanced (Rauch and Pfaffenwimmer 2015).

In 2019 a new platform for Education 2030 was launched as a joint endeavour of ESE organisations and Organisations for Global Learning and Global Citizenship (<https://bildung2030.at/>). The platform bundles information on the topics of Agenda 2030 and provides a wide range of ideas on how global challenges can be addressed in different teaching and learning situations for all age groups. It collects Austrian-wide events and materials for schools and other educational institutions and offers an overview of current training and further education for stakeholders. In addition, the platform presents the educational concepts GCED and ESD and contributes to critical and sustainable education. Especially the preparation of the quality criteria provided an opportunity for intensive and fruitful discussions between the participating organizations. The platform is financed by the Austrian Development Cooperation and the Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology.

6. Emerging issues and trends as well as current and future needs of environmental and sustainability education in the country

At the beginning of this section, we describe issues, that still need to be addressed on the road to reaching the SDGs in Austria. Moving to a more positive outlook we then present impending policy changes and conclude with a description of current trends in ESE in Austria.

6.1 Unresolved issues

The Austrian Commission for UNESCO (2019, 4ff) has identified several factors that make it difficult to implement the SDGs in Austria, thus highlighting issues, which still have to be addressed:

- In the Austrian education system, informal learning processes are strongly linked to the experience of inequality, discrimination and exclusion. Increased through correspondingly shaped educational concepts, this is passed on from generation to generation.
- Within the complex education system, interests of different stakeholders are at odds with each other. The basic consensus that the best education should be provided for all students, does not appear to be present in the whole of Austrian society.
- The opportunities necessary to develop a critical political awareness in teachers and students, which enables them to recognize today's problems, to analyze them in a responsible manner and to participate in their solution are available in the formal education system only in basic form.
- The lack of integrated all-day schools as well as the lack of support systems for problem situations in the free public educational institutions counteract the goal of achieving relevant and effective learning outcomes, especially for children with a migrant background, a first language other than German, and a combination of poverty.
- There is a lack of nationwide childcare systems for children under 3 years. The qualifications of the personnel in this sector do not correspond to international standards, as they lack academic training.
- Gender stereotypes still strongly influence children and young people. Austria shows particularly large gender differences in the development of competencies and the choice of profession, which negatively impacts future opportunities for participation.
- On the tertiary level of education, there is a lack of assistance systems for people with disabilities. Thus, the access to an academic degree is impaired and the opportunities on the labour market are very limited for them.

6.2 Policy and ESE

Despite the unresolved issues, described above, on a more positive note, Austria is about to enter a new phase in the implementation of ESE in schools. Currently, a new curriculum for primary and lower secondary schools is being developed (BMBWF 2020). This curriculum will for the first time include ESE both in the general educational principles as well as in selected subjects such as Biology or Geography but also Mathematics. This is a milestone development and shows the growing awareness of the importance of ESE in Austrian policy makers.

In a similar spirit, the UniNEtZ project (compare chapters 4 and 5) is designed to further the efforts of sustainable development in Austria. As the SDGs mutually shape each other and can only

be realised through inter- and transdisciplinary thinking, UniNEtZ represents a broad spectrum of expertise from fields seemingly as far apart as social sciences, STEM (Science, Technology, Engineering, Mathematics), and the arts. A number of synergy effects are likely to emerge as a result of the project, including the implementation of sustainability in research and teaching as well as a stronger collaboration between universities and society. The networking between higher education institutions and the implementation of the SDGs in research, teaching and society are at the heart of UniNEtZ (UniNEtZ 2020).

The University of Klagenfurt and the University of Innsbruck have taken on the coordination role of SDG 4 within UniNEtZ. Participating members of SDG4 are from 14 universities, and also comprise stakeholders such as representatives of the Austrian Ministry of Education, University Colleges of Teacher Education, Hochschulbildung Global [Higher Education Global], Geological Survey of Austria, and Forum n. The SDG 4 Unit is currently working on the Option Report – the final report with policy recommendations (options) on how to reach the SDGs, spanning the whole educational system from early childhood to university education– that will be published by the end of 2021 (UniNEtZ 2020).

Our understanding is that this project is novel in its form and structure. Since Austria is a rather small country, this project could be considered as a pilot study that could be adapted and rolled out to larger settings. We thus would like to share our experiences with the global sustainability community and discuss potentials and challenges of the communication and development process. We hope to stimulate further projects on a global scale in the years to come.

6.3 Climate action as a central theme

While policy documents focus on the SDGs and ESE on a more general level, a trend towards focussing on climate change and thus SDG 13 as a central theme can be detected in current projects and stakeholder's priorities. ECOLOG has decided on *Climate.Action.Time* as the special subject guiding the network partners from 2020 to 2023. Accordingly, partners can find project suggestions and teaching materials on the topic on the homepage, in-service teacher education workshops will be held focussing on climate action and schools are encouraged to focus their initiatives around combating climate change (https://www.oekolog.at/f%C3%BCr-den-unterricht/klima_wandel_zeit/).

However, ECOLOG does not stand alone with this focus. Forum EE and UBZ (Environmental Education Centre, based in Graz) strongly focus on SDG 13, providing links, materials and workshops for educators in order to support pro-environmental and climate action. The new Education 2030 platform as a cooperation between global learning and education for sustainable development must also be mentioned in this respect (see also above) (<https://bildung2030.at/>).

The Tyrolean initiative k.i.d.Z. 21 (the acronym stands for competent towards the future) focuses on climate change as one of the grand challenges of future generations. The project aims at

- 1) Increasing the awareness of young people for climate change and its consequences
- 2) Fostering young people's adaptability and action competence
- 3) And to prepare them for the societal, ecological and economical challenges of the 21st century (Oberrauch et.al. 2015.)

The project combines inter- and transdisciplinary approaches and focusses on teaming up researchers with young people and their teachers in a direct partnership.

Similarly, the project 'makingAchange' also aims at bringing research and education together. The project is targeted to reach secondary school and support them in contributing to a societal transformation under the light of climate action and sustainability (<https://makingachange.ccca.ac.at/>).

As a societal bottom-up development the Fridays-for-Future movement in Austria has also generated a positive dynamic in recent years. There are active groups in schools and universities all over the country. Inspired by the uprising of the youth, Teachers-for-Future and Scientists-for-Future were established. Fridays-for-Future had a positive influence on the positioning of ESE in the new curriculum that is currently being worked on (see above). Student groups are actively involved in the UniNETZ project as well.

7. Conclusion

In conclusion, it can be said that ESE gained momentum through the 2030 Agenda. New projects (e.g. UniNETZ, makingAchange) and collaborations (e.g. Platform Education 2030) have emerged and policy makers have been positively influenced by bottom-up initiatives such as Fridays-for-Future. Furthermore, existing initiatives and networks (e.g. ECOLOG) continue to develop and to adapt to new global programmes and challenges. The launch of the programme *Education for Sustainable Development: Towards achieving the SDGs (ESD for 2030)* in 2021 will hopefully also give new impetus to ESE in Austria (UNESCO, 2020). The new momentum generated by the strong emphasis on transformative action and critical thinking should slowly move from the above-mentioned pioneering organizations and activities into the mainstream of education.

As far as the weak spots of the Austrian education system are concerned, it remains to be seen whether the problems can really be overcome. In order to do so a major paradigm shift would have to take place, with a stronger detachment of educational policy from party politics. Additionally, the COVID-19 pandemic is also challenging the country especially the education system – like everyone else. It remains to be seen whether solidarity and sustainable future orientation will be promoted or not. However, there is still hope.

References

Altrichter, H. and Posch, P. 2009. Action Research, Professional Development and Systemic Reform. pp. 213–225. *In*: S. E. Noffke and B. Somekh [eds.]. Educational Action Research. Los Angeles, SAGE Publications Ltd.

Affolter C. and Varga, A. [eds.]. 2018. Environment and School Initiatives. Lessons from the ENSI Network - Past, Present and Future. Wien, Environment and School Initiatives and Budapest, Eszterhazy Karoly University.

Austrian Commission for UNESCO. 2019. Positionspapier zur Umsetzung von SDG 4 in Österreich. https://www.unesco.at/fileadmin/Redaktion/Publikationen/Publikations-Dokumente/2019_Positionspapier_OEUK_Fachbeirat_Transformative_Bildung.pdf (accessed on 22 November 2020).

Austrian Federal Ministry for Education and Women's Affairs. 2014. Basic decree on environmental education for sustainable development. Wien. (https://bildung.bmbwf.gv.at/ministerium/rs/2014_20_ge_umwelt_en.pdf)

BMBWF (2020) Lehrplan für die Volksschule. (under revision). Retrieved November 20, 2020, from www.bmbwf.gv.at/Themen/schule/schulpraxis/lp/lp_vs.html

Breiting, S. and Mogensen, F. 1999. Action Competence and Environmental Education. *Cambridge Journal of Education*. 29/3: 349-353.

Bruneforth, M., Herzog-Punzenberger, B., and Lassnig, L. [eds.]. 2012. Nationaler Bildungsbericht Österreich 2012. Indikatoren und Themen im Überblick [National education report Austria 2012. Indicators and topics: An overview]. Wien, BMUKK, Bifie, Leykam.

Cornell, J.B. 1979. *Mit Kindern die Natur erleben*. Soyn, Verlag an der Ruhr.

De Haan, G. and Harenberg, D. 1999. Expertise „Förderprogramm Bildung für nachhaltige Entwicklung“. Berlin, FU Berlin.

Feldmann, A., Altrichter, H., Posch, P. and Somekh, B. 2018. *Teachers Investigate their Work*. Milton Park, Routledge (3rd Edition).

Grobbauer, H. and Wintersteiner, W. 2019. *Global Citizenship Education. Concepts, Efforts, Perspectives – an Austrian experience*. Salzburg, Klagenfurt, Komment.

Hartmeyer, H. 2001. Globales Lernen in Österreich – Erfahrungen, Erwartungen, Perspektiven. In: F. Halbartschlagler [ed.] *Eine Welt. Beiträge zu Globalem Lernen*. Symposium Globales Lernen. Wien, SüdwindAgentur.

Hofstede, G. 2011. Dimensionalizing Cultures: The Hofstede Model in Context. Online readings in psychology and culture. International association for cross-cultural psychology. Unit 2, Subunit 1. Retrieved November 20, 2020, from <https://academic.microsoft.com/paper/2133535394/citedby/search?q=Dimensionalizing%20Cultures%3A%20The%20Hofstede%20Model%20in%20Context&qe=RId%253D2133535394&f=&orderBy=0>

Hofstede Centre. 2020. Cultural dimensions of Austria, Retrieved November 20, 2020, from <https://www.hofstede-insights.com/country/austria/>

Kant, I. 1787/1956. *Kritik der reinen Vernunft*. Hamburg, Felix Meiner Verlag.

Katzmann, W. 1986. Die „Wiener Deklaration“ und die ARGE. In: ARGE Umwelterziehung (ed.). *Eine Zwischenbilanz*. Wien, ARGE Umwelterziehung.

Klenk, G. 1987. *Umwelterziehung in allgemeinbildenden Schulen. Entwicklung, Stand, Probleme*. Frankfurt, Haag und Herschen

Kyburz-Graber, R., Posch, P. and Peter, U. 2003. Challenges in Teacher Education – Interdisciplinarity and Environmental Education. Innsbruck-Wien-München-Bozen, StudienVerlag.

Lechner, C. and Rauch, F. 2014. Quality Criteria for Schools Focussing on Education for Sustainable Development (ESD). pp. 65-76. *In: F. Rauch, A. Schuster, T. Stern, M. Pribila and A. Townsend [eds.]. Promoting change through Action Research. International case studies in education, social work, health care and community development. Rotterdam, Sense.*

Lieschke, M. 1993. Ziel erreicht? Umwelterziehung. 4/5: 6-9.

Lukesch, R., Payer, H., Pfaffenwimmer, G. and Posch, P. 2009. Emerging partnerships between school and community – Results from a pilot study in Austria. *In: K. Czippán, A. Varga, and F. Benedict, F. [eds.]. Collaboration and Education for Sustainable Development. Case studies collected by SUPPORT members 2008-2010. Oslo, Norwegian Directorate of Education and Training.*

Oberrauch, A., Keller, L. Riede, M. Mark, S., Kuthe, A., Körfgen, A. and Stötter, J. 2015. „k.i.d.Z.21 – kompetent in die Zukunft“ – Grundlagen und Konzept einer Forschungs-Bildungs-Kooperation zur Bewältigung der Herausforderungen des Klimawandels im 21. Jahrhundert. *GW-Unterricht. 139: 19-31.*

Oberwimmer, K., Baumegger, D. and Vogtenhuber, S. 2019. Indikatoren A: Kontext des Schul- und Bildungswesens. pp. 25-48. *In: Oberwimmer, K., Vogtenhuber, S., Lassnig, L. and Schreiner, C. [eds.]. Nationaler Bildungsbericht Österreich 2018. Graz, Leykam.*

Pfaffenwimmer, G. 2004. ENSI Study: Quality criteria for ECO school development. Austrian Report. Austrian Federal Ministry for Education, Science and Culture. *In: M. Mayer and F. Mogensen Environmental Education ECO-schools: trends and divergences, A comparative Study on ECO-School development processes in 13 countries. Wien, BMUKK.*

Posch, P., Rauch, F. and Kreis, I. (2000) [eds.] *Bildung für Nachhaltigkeit. Studien zur Vernetzung von Lehrerbildung, Schule und Umwelt. Innsbruck, StudienVerlag.*

Rauch, F. 2016. Networking for Education for Sustainable Development in Austria: The Austrian ECOLOG-Schools Programme. *Educational Action Research. 24 (1): 34-45. (DOI: 10.1080/09650792.2015.1132000)*

Rauch, F. and Dulle, M. 2012. Auf dem Weg zu einer nachhaltigen Schulkultur—15. Jahre ÖKOLOG-Programm, 10 Jahre Netzwerk ÖKOLOG. Wien, BMUKK.

Rauch, F. and Pfaffenwimmer, G. 2015. Education for Sustainable Development in Austria. Networking for Education. pp. 157-176. *In: R. Mathar and R. Jucker [eds.]. Schooling for Sustainable Development in Europe. Dordrecht, Springer.*

Rauch, F. and Pfaffenwimmer, G. 2020. The Austrian ECOLOG-Schools Programme – Networking for Environmental and Sustainability Education. pp. 85-102. *In: A. Gough, J. Chi Kin Lee and E. Po Keung Tsang [eds.]. Green Schools Globally: Stories of Impact for Sustainable Development. Dordrecht, Springer.*

Rauch, F., and Pfaffenwimmer, G. 2018. ENSI pillars - Action Research and Dynamic Qualities. pp. 40-45. *In: C. Affolter, A. Varga [eds.]. Environment and School Initiatives. Lessons from the ENSI Network - Past, Present and Future. Wien, Environment and School Initiatives and Budapest, Eszterhazy Karoly University.*

Rauch, F., and Steiner, R. 2006. School Development through Education for Sustainable Development in Austria. *Environmental Education Research*. 12(1): 115-127.

Rauch, F. and Steiner, R. 2013. Competences for Education for Sustainable Development in Teacher Education. *CEPS-Journal (Centre for Educational Policy Studies Journal)*. 3(1): 9–24.

Rauch, F. and Steiner, R. 2015. BINE: Professional development ESD course for higher education teachers, Austria. pp. 114-119. *In*: D. Kapitulcinova, J. Dlouha, A. Ryan, J. Dlouhy, A. Barton, M. Mader, D. Tilbury, I. Mula, J. Benayas, D. Alba, C. Mader, G. Michelsen and K. Vintar Mally [eds.]. *Leading Practice Publication: Professional development of university educators on Education for Sustainable Development in European countries*. Prague, Charles University in Prague.

Reardon, B. A. 2010. *Human Rights and Human Rights Learning as a Vehicle for the Renewal of the University*. Klagenfurt, MS.

Schober, B. 2019. Bildung in der Welt von übermorgen: Herausforderungen und Chancen aus der Perspektive der Bildungssoziologie. pp: 498-505. *In*: Breit, S, Eder, F., Krainer, K., Schreiner, C., Seel, A., and Spiel, C. [eds.]. *Nationaler Bildungsbericht Österreich, Band 2*. Graz, Leykam.

Singer-Brodowski, M. 2016. Transformatives Lernen als neue Theorie-Perspektive in der BNE. pp. 130-139. *In*: *Umweltdachverband GmbH [ed.]. Jahrbuch Bildung für nachhaltige Entwicklung – Im Wandel*. Wien, Forum Umweltbildung im Umweltdachverband.

Statistik Austria. 2020a. Retrieved November 20, 2020, from <http://www.statistik.at/>

Statistik Austria. 2020b. Agenda 2030 für nachhaltige Entwicklung in Österreich – SDG-Indikatorenbericht. Abgerufen von http://statistik.at/wcm/idc/idcplg?IdcService=GET_NATIVE_FILE&RevisionSelectionMethod=LatestReleased&dDocName=122802

UniNEtZ SDG 4. 2019. Positionspapier. <https://www.uninetz.at/reflexionen/reflexionen/sdg-4-positionenpapier> (accessed on 22 November 2020).

UniNEtZ. 2020. Perspektivenbericht Executive Summary. https://www.uninetz.at/wp-content/uploads/2020/03/02-2020_Kurzversion_Perspektivenbericht.pdf (accessed on 21 April 2020)

United Nations. 2015. *Transforming our world: the 2030 agenda for sustainable development*. Retrieved from: https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

UNESCO. 2014. Roadmap for implementing the global action programme on education for sustainable development. <http://unesdoc.unesco.org/images/0023/002305/230514e.pdf> (accessed on 22 November 2020).

UNESCO. 2020. *Education for Sustainable Development. A roadmap. ESD for2030*. Paris, UNESCO.