Whole School Approaches to Sustainability: Exemplary Practices from around the world

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The report serves as one of the key inputs for the WSA International hybrid Conference held on the 28 - 30th of March 2022, Lunteren, The Netherlands, organised by SME Advies.

With the help of multiple practitioners connected to the school examples which are mentioned in each case study, this report has been prepared by researchers Rosalie Mathie of The Norwegian University of Life Sciences, and Arjen Wals of Wageningen University in The Netherlands[a].

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Preamble

This report provides an analysis of practical examples of the use of a WSA to help achieve Sustainable Development Goal (SDG) 4 - Quality Education for all, and all the other connecting SDGs. Distinct but inevitably connected and reinforcing features of a WSA are highlighted: *Curriculum design assessment and development; Pedagogical innovation; School management and leadership; School-community relationships; Professional development of all staff; and Institutional practices – The school as a 'living laboratory' for experimenting with healthy, equitable, democratic, and ecologically sustainable living.*

Schools engaging with a WSA from sixteen countries (Japan, The Netherlands, Mongolia, USA, South Africa, Cyprus, Norway, Canada, India, Hongkong, UK, Finland, Türkiye[a], Nepal, Uruguay, and Kazakhstan) have contributed to the report. They have provided critical examples of exemplary practices[b] that not only highlight success stories, best-practice principles, and strategies, but also struggles, set-backs and challenges and approaches to overcome them.

A few words on privilege and access: While this report makes a conscious effort to bring together a diverse range of school examples from around the world, the countries and schools represented are limited due to a very short time-frame for identifying and selecting the case study examples. It is also clear that some of the cases feature schools that have a more privileged starting point than others, with regards to for example funding and access to support. Moreover, some schools may not be accessible to those who live under less favourable circumstances, or do not have the means to join a school such as the ones included in this report. Additional examples are still needed that come from different cultures and societies, as each will have unique insights that are impossible to capture in just one 'quick scan' best practice report. Moreover, one cannot ignore the inequities and disparities that are apparent within the sustainability-oriented education context. Especially when many students witness and experience conflict, violence, social and environmental injustice, and extreme income disparities. Here, the policy-environment has a key role in making sure that attention is paid to inequality, and that extra support is provided to those schools and communities who are merely trying to survive daily as issues of inclusivity are an essential aspect of sustainability. One also cannot ignore that the 'green school' movement is still seen as transforming only a minority of schools as Tannock[1] discusses: "Annette Gough[2] estimates that "generally a third or less" of schools in any given country are currently participating in green school programs, "with a domination of early childhood and primary schools." Unless the best Green Schools and Eco-Schools can become prefigurative spaces for developing pilot models that lead to the transformation of the whole school system, the risk is that this kind of climate and environmental education can end up becoming what so often happens to progressive forms of education: a specialist form of schooling accessible only to a privileged few children and young people"[3]. It is vital we ensure that the momentum and traction holistic approaches such as a WSA are experiencing today is utilised to develop sustainability-oriented education and sustainable development that is inclusive and beneficial to all.

The lay-out of the report is as follows: First, a general introduction to a WSA to Sustainability is provided. The subsequent section contains the in-depth case-studies, preceded by a short explanation of how cases were selected, analysed, and reported on. The closing section consists of a meta-analysis of the case studies with key lessons learnt and suggestions for strengthening the WSA from a policy perspective.

a: As requested by the contributors, we are using 'Türkiye', instead of 'Turkey' in this report.

b: Disclaimer – Writing this report was a joint effort involving teachers and researchers from around the world. While we have all aimed to be critically reflective, this report is foremost gathering insight instead of presenting empirical studies as not all the schools have been visited directly. The main focus of the report was to gather up to date experiences and knowledge directly from schools engaging with a WSA, with the overarching aim to stimulate the discussion that will take place at the WSA international conference and beyond.

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I Introduction

Whole School Approaches to Sustainable Development – A Transition Perspective

A Whole School Approach (WSA) provides a framework for re-orienting and redesigning education considering emerging global sustainability challenges[4]. It invites a holistic, systemic, co-creative and reflexive effort by all stakeholders involved in education to meaningfully engage students in complex sustainability challenges. *Holistic* here refers to the attempt to explore and address sustainability issues from multiple perspectives in an integrated and relational way. *Systemic* refers to considering key aspects of the education system simultaneously (curriculum, pedagogy and learning, professional development, school-community relationships, school practices, ethos, vision and leadership). *Co-creative* refers to the inclusion of multiple voices and multiple stakeholders in the development of the approach within a given context. Lastly, *reflexive* refers to the need for continuous learning, monitoring, evaluating and re-calibrating in light of a world that is in constant flux.

A WSA is not a tool or a prescription for implementing a topic or a specific agenda like ESD, but rather a means to encourage schools to use the WSA as a thinking tool for educational innovation generally. A WSA is a concept in which multiple themes can be simultaneously addressed within the overarching umbrella of 'sustainability' or 'sustainable development,' not by reducing them to 'learning tasks', but as entry points to a different way of working and living. As such a WSA represents a transition perspective, in that it does not intend to optimise mainstream education, but rather it seeks to re-orient it by anchoring it in different principles and values that contribute to education that is more responsive, relevant, responsible, and re-imaginative, in light of urgent global challenges[5].

Just like 'business-as-usual' is no longer an option in times of obvious unsustainability, 'education-as-usual' is not an option either. This has also become apparent in international policy-arenas. In the first half of 2021, the United Nations Economic Commission for Europe (UNECE) strategic document on ESD[6], also, the United Nations Education, Scientific and Cultural Organisation (UNESCO) ESD for 2030 Berlin declaration[7], and even more recently, the European Commission (EC) Council recommendation on learning for environmental sustainability[8], all highlighted the potential of a WSA. It appears that the WSA or the broader 'Whole Institution Approach', is becoming a central concept in policy-discourse around education and SD. It should be acknowledged that the concept as such has been around in educational practice for quite some time already. Historically, the WSA has surfaced since late last century in related but distinct fields such as Education for Health and Wellbeing, (Global) Citizenship Education and, indeed Education for Sustainable Development (ESD). In the context of sustainability, the WSA can be traced back to the 1990's as well, when educational reforms started to engage more in holistic integrated sustainability agendas highlighting how environmental issues interconnect to multiple of social and political issues[9].

UNESCO describes the WSA as a key thinking tool for ESD "to enable learners to live what they learn and learn what they live"[10]. Tilbury & Galvin's (2022) recent EC input paper, A WSA to Learning for Environmental Sustainability, listed key starting questions that need to be addressed by the school community: community: "What is taught (curriculum; hidden curriculum)? Where does learning take place (classroom; school buildings; campus; community)? Who do we learn from (teachers - school staff parents - partnerships)? How is learning taking place (action learning; participatory learning; critical reflective learning; values clarification)? Is there a culture of sustainability? Can staff, students and wider community see the alignment between what, where, who, and how?"[11] The EC input paper also concludes with a 5-point summary, based on Henderson & Tilbury's[12] characterising effective WSA's as:
"***relevant*** - to school's mission; national educational priorities; community identity; as well as environmental priorities of the region.
resourced - with expertise and support in sustainability and learning for sustainability; physical resources and technologies to make the transition; and medium-term finance to execute plans.
reflective - skilled in critical reflection and evaluation at all levels; developed critical thinking competences in its staff and students; striving to become a *learning organisation*.
responsive – embraced a flexible structure and adapted to local and cultural settings; developed learner capabilities that helped recognise complexity as well as the changing nature of sustainability challenges and rejected a one size fits all approach to sustainability.

reformative – appreciated that the agenda is not simply one of adding on environmental or SDG themes to the curriculum but that of reframing the entire educational experience. "[13]

It is clear that a wealth of theoretical understanding and studies that promote and support a WSA to sustainability-oriented education does exist. However, as a WSA becomes part of a mainstream agenda, there is a pressing need for examples of WSA in practice to be collated and shared to allow for joint learning. One conceptualisation of a WSA currently in use in countries like the Netherlands and Norway is the WSA flower model. This model consists of six interrelating elements (Figure 1) that together constitute a WSA.

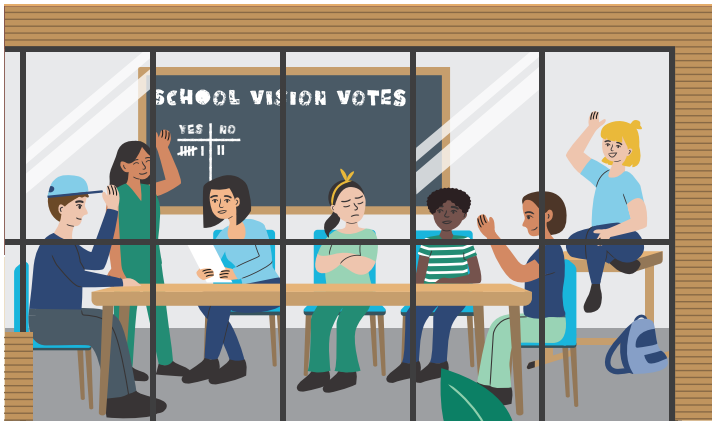
Different variations of this model can be found, both in international education policy initiatives connected to SDG 4 (e.g. Ed.Scotland[14], 2020; UNESCO, 2017[15]; COE, 2018[16]; UNGEI, 2018[17]), and connected research (e.g. Chopin et al, 2018[18]; Mogren et al., 2019[19]; Rowe et al., 201[20]; Scott, 2005[21]; Shallcross et al., 2006[22], 2008[23]; Mathar, 2015[24] & 2016[25]; Hunt & King 2015[26]; Bosevska & Kriewaldt, 2020[27]). However, they all highlight the multifaceted aspects of anchoring holistic, systemic and sustainable perspectives meaningfully in education, and emphasise that the whole is more than the sum of all the parts.

The WSA model is meant to be used as a thinking tool to initiate and guide an on-going multi-stakeholder dialogue about how sustainability can best unfold in a school setting (See also references mentioned above). Each of the components of the flower will be briefly described[a].

Figure 1: The Whole School Approach Flower Model with its 6 key components (adapted from Wals and Mathie, 2022[28])

a: This short WSA description has been modified from Wals and Mathie, 2022.

Vision, Ethos, Leadership & Coordination • All stakeholders in a school are involved in developing a vision of what a sustainable school entails and invites. School leadership enables such participation and provides for some coordination as changing an entire system can be complex and messy. The school culture and ethos align with the vision, as consistency between thinking and doing is essential. Typically, a school ethos that aligns well with notions of sustainability is one that is caring, nurturing, inclusive, open, peaceful, and reflexive. Asking questions, including uncomfortable ones is encouraged, to foster a willingness to re-think and re-calibrate the school considering new insights and a changing world.



Curriculum • Schools have a say in the curriculum and can connect with key emerging sustainability topics from disciplinary (the regular subjects) and interdisciplinary vantage points. Ideally there is space and freedom to create a more localised, place-based and co-created 'parallel curriculum' that allows for engagement in and responding to cross-cutting interdisciplinary challenges such as climate urgency. Subject teachers do not dismiss their disciplinary focus, yet still engage in a 'whole subject approach' that allows for making links with SD-topics and the inclusion of perspectives from other disciplines. A curriculum that allows for alternative forms of pedagogy and learning to be experimented with is essential.

Pedagogy & Learning • The pedagogies and types of learning that are most suitable for realising this are not of a transmissive and singularly cognitive kind, but of a transformative kind affecting mind, body, heart, and soul. Typically, such pedagogies and learning processes are place-based, experiential, inquiry-based, transgressive, and critical, as well as socio-emotional with attention to moral issues, ethics, and values. In a WSA the pedagogical environment a teacher and the school create tends to be one of trust, curiosity, collaboration, participation, and democracy. Much of the learning does not take place inside the classroom but also in other spaces in the school building, as well as on the school grounds and in the local community, e.g., in outdoor classrooms, repair cafés, etc.

Institutional Practices • 'Walking the talk' and aligning what we find important and believing in what we do, is critical in creating a culture of sustainability (Shallcross et al., 2006). What a school does, what behaviour it invites, or makes difficult, all reflect a school's intentions and ethos. For example, energy and water usage, the kind of food and nutrition that is offered or nudged, how biodiverse the school ground is, what forms of transport students and staff use, but also how people deal with conflict, diversity and inequality. Educational investigative explorations focusing on sustainability issues in and around the school itself provide rich educational opportunities that connect with curriculum, pedagogy, and learning, while at the same time establishing healthy school-community relationships. By interrogating, rethinking, and redesigning institutional practices the 'hidden curriculum of unsustainability' that is often present, can also be exposed and addressed.

Community-Connections • A school can be seen as a microcosm of the wider world nested in a community filled with resources for teaching and learning. To create a healthy habitat that invites and supports sustainability, a school will need to be both inward and outward looking, to be open and connected to the people and place/land it occupies, and the other species that live there. Establishing good relations with parents, residents, businesses (local farmers, bike [repair]shops, restaurants, etc.), community and cultural hubs (libraries and museums etc.), informal learning spaces and other education institutions, NGO's, special interest and advocacy groups, as well as with local government, is critical. The idea is that synergies and mutual learning can occur when students explore issues that are relevant, not only to themselves but also to others, whereby community partners can offer insights but can also benefit from students' attention, cooperative research and creativity. By using the local community as a living lab or an outdoor classroom, students also can become more rooted in their own habitat and gain a sense of place and connectedness.

Capacity Building • A transition in education towards more integrated, existential, and relational forms of teaching and learning also implies that all those working in schools, not only teachers, but also those cleaning the building, running the school canteen, the people maintaining the buildings and the schoolgrounds, etc., will need to have the competences needed to support such learning and contribute to the ethos a school aspires to realise. Depending on the kind of work staff members do, there will be differences in what these competences entail. Professional development of teachers remains critical as they will need to be able to work with a more open curriculum, broker relationships within the school and with outside partners in the community, and work with a range of disciplinary vantage points alongside their own. Teachers and examiners also will need to become comfortable with alternative forms of assessment that pay attention to socio-emotional and embodied forms of learning.

Another area, not covered by the model, is the policy environment in which a school is nested. Such an environment can be supportive or constraining. In the synthesis section (Section III) some characteristics of policy environments and policies that are conducive to a WSA will be provided.

In the next section the various elements, relationships and synergies, but also tensions and challenges that arise when enacting a WSA to sustainability, will be sketched out. Critical WSA-in-action examples are featured that emphasise both common and different entry points, and aspects, of a WSA to sustainability-oriented education.


CLIMATE ACTION NOW
SCHOOL VISION VOTES
YES | NO
SCHOOL VISION →
TEACHER TRAINING ↗
← CITIZEN SCIENCE ↗
COMMUNAL LUNCH FOR ALL! ↗
↖ COMMUNITY ART
OUTDOOR CLASSROOM ← GARDEN →

II Critical Exemplary WSA Case Studies from around the world

Central in this report are the critical exemplary case studies from schools around the world that offer practical examples of a WSA to SD in action. The critical refers to 'also revealing barriers, set-backs, struggles' and sketching potential ways out of them. Through an international call for such examples – via international networks like, Eco-Schools, UNESCO and UNECE, as well as social media (LinkedIn, Twitter and Blogs), potential cases were received which were then screened for suitability. The selection criteria focus was to identify a broad selection (both geographically and school types) of primary, secondary, or upper secondary schools (including vocational ones) that provided practical examples of how a WSA is being utilised in practice. Any type of primary or secondary school was considered if they provided current and practical examples of holistic and integrated approach to sustainability-oriented education and were willing to be critically reflective. The contributions come from standalone schools that made contact directly, or schools that are part of larger relevant sustainable-oriented education collaborations or partnerships - for example, a teacher education department, an NGO, or wider educational innovation projects. The overarching aim was to be inclusive in the selection to ensure a broad range of entry points and school types were included. From compiling this 'quick scan' WSA report, it is clear the interest and commitment to a WSA is far and wide. However in some situations where the motivation and knowledge exists, the structural support and competencies to support schools is missing to enable schools to move beyond 'bolt on' or 'built in'[29] approach to SD. Take for example in Türkiye, the experience from one dedicated primary school teacher Çelebi Kalkan's (also Scientix Ambassador[30]) experience (on page 10).

Another contribution submitted for this report highlights the need for flexibility and openness in the way a WSA is utilised and engaged with. In Uruguay, researcher Diego Posada documented the enablers and barriers for one school on its journey towards sustainability. While this inspiring school is not included as a main critical case-study due to constraints,[a] it is clear this school can offer inspiration as to how a school building that lives and breathes sustainability, motivated staff, and full of low-tech sustainability and closed loop systems, can be an integral entry point for a WSA. Diego Posada, currently a PhD student at The University of Padova in Italy, provides a few insights (on page 11).

In the end, 17 cases from 16 countries were selected for further development in close connection with the case -study contributors. The cases come from: Japan, The Netherlands, Norway, Canada, South Africa, India, Hongkong, Finland, Mongolia, Cyprus, England, Northern Ireland, Nepal, Türkiye, Kazakhstan, and the USA.

The cases selected for this publication offer examples of a **WSA principles** in action from a diverse collection of schools, both in their geographical location, school type, and pedagogical approach. All highlight how multiple aspects of a WSA (*curriculum development, pedagogical innovation, school management and leadership, school-community relationships, professional development of staff, and the school as a 'living laboratory' for experimenting with healthy, equitable, democratic, and ecologically sustainable living*) can be engaged with, especially how these aspects can be integrated to mutually strengthen each other.

The cases are presented in a random order using a fixed structure of: 1). Title 2). The national ESD context in which a case is nested 3). Introduction to the case and its local context 4). Highlights and examples of key WSA principles in action at the school. 5). A box with the identified strengths and challenges of the case. As much as possible the cases are illustrated with photos, figures and/or illustrations to capture the richness of the examples. All cases contain references listed in the report endnotes.

a: It was not possible to contact the school management directly, which was a requirement for this report.

***Türkiye** • Çelebi Kalkan, primary school teacher, Scientix Ambassador - Hasan Polatkan Primary School*

While the Turkish national curriculum supports an integrated approach to sustainability-oriented education through the primary school life science, science and social studies courses, in my school it is difficult to move beyond a 'Whole Classroom Approach'. This is because I am often doing this alone because not enough teachers have ESD related competencies. However, in my experience a strong entry point for utilising a WSA has been introducing ESD related pedagogy and learning processes, such as the inquiry-based learning studies Science, technology, engineering, and mathematics (STEM) education provides. STEM education in the 21st century aims to develop and present innovative solutions to global issues that are directly related to the 2030 Sustainable Development Goals. In our school this has also led to awareness activities happening connected to the issues related to the sustainable development goals (Protect Your Food -SDG 2, Zero Waste - SDG12 and Breathe into the Future - SDG13), for example, planting trees, cleaning the environment with students. However, the other WSA components are only partially embraced.

As a contribution to build capacity in Türkiye, *Dr. Sümeyra Ayik and I have written* a SDG Activity book[31] based on pedagogical techniques that engage students in learning about the SDGs through play and having fun. It is designed to be relevant for all learners of all ages worldwide, and it aims to support policymakers, curriculum developers, and educators in designing strategies for ESD. As is the case all over the world, national policy and funding needs to be made available to support capacity building, otherwise the pedagogical inadequacy of teachers will continue to remain the biggest barrier. Human skills cannot be developed without quality education. It is not possible to achieve sustainable development goals without gaining human skill.

Students SDG activities on global food waste awareness day

***Uruguay** • Researcher Diego Posada: Public School No. 294 - Escuela Sustentable*

Escuela Sustentable, otherwise known as the Sustainable School is situated in Jaureguiberry, a small coastal town 70 km East of Montevideo. It is a primary rural school located in a lower-middle socioeconomic background that works with around 80 students. The educational team consists of two teachers, one pre-school educator and a Headteacher. They are also supported by a Vegetable Garden Expert and volunteers from Tagma, the NGO that built the school in 2016. The school was built applying biotecture techniques and 60% of the materials used were recycled items such as tyres, glass, plastic bottles, etc. Water is collected for human use and vegetable garden irrigation and the energy grid relies on solar panels. The school has received international awards for being the first sustainable and self-sufficient public school in Latin America. Furthermore, the school has received significant media and public attention over the past years and is the first of a growing network of schools of similar characteristics built by NGO Tagma[32] in Latin America in Argentina, Chile and Colombia. Based on my observations, support by the community and authorities are key. If either of these faulter, as it has been observed in this case, every step is a struggle. Moreover, school leaders must be willing to embark into the unknown and learn in the process along with students. One of my interviewees claimed that the youth are pushing the older generations to take these steps, it's a matter of walking side by side and discover how to adapt our old ways into these new pedagogical perspectives.

Strengths • 1. The school building, which follows biotecture techniques such as rainwater collection and irrigation, solar energy grid, passive heating and cooling, etc. **2.** Experienced and flexible staff: two professionals have embraced the project since its inception and worked hard to draft an institutional project that promotes sustainability as its main aim. **3.** Support by external actors such as the NGO that built the school and a "vegetable garden expert." **4.** The location: The school is located in a small beach town, which invites students to work outside and connect to nature.

Challenges • 1. Lack of community engagement: Most parents wanted a "traditional" public school and not an alternative one. This is something the professional team struggles with 6 years on. **2.** Uneven commitment by members of the educational team: Due to national educational policies, teachers rotate and therefore there has been an unstable team. Moreover, those teachers assigned to the school do not necessarily believe in its ethos or sustainability approach. **3.** Lack of support by national educational authorities to face the unique challenges this school faces. **4.** Standardised curriculum: since it's a public school, it has to follow the national curriculum. However, there are no standardised tests in Uruguay, which allows for significant pedagogical freedom for teachers.

The school building and grounds of Public School No. 294, Uruguay