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1. SZELLEMI TERMÉK

HELYZETKÉP

urban science

Készült
az Urban Science:
Vonzó természettudomány, fenntartható városok kialakítása
című projektben,
az Európai Unió Erasmus+ programjának társfinanszírozásával.

WILD AWAKE
CREDA ONLUS CENTRO RICERCA EDUCAZIONE DOCUMENTAZIONE AMBIENTALE
Bérces Vidék Iskola
KUTOSZ
GRID WARSZAWA
In partnership with UN Environment
ecosystem europe

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1. SZELLEMI TERMÉK

HELYZETKÉP

Ezt a szellemi terméket az Urban Science projektben hozták létre.

A munkacsoport vezetője:

Wild Awake, Nagy-Britannia

Kiemelt szerzők:

Réti Mónika, Kutató Tanárok Országos Szövetsége

Szerzők:

Bernu Vides skola (Gyermekek Környezeti Iskolája), Lettország
CREDA onlus, Olaszország
Ecoystem Europe Szövetség, Bulgária
Kutató Tanárok Országos Szövetsége, Magyarország
UNEP/GRID Varsói Központ, Lengyelország

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1. Summary of research done

Primary Research consisted of:

A three-cycle Delphi research, which contained

- in the first cycle an online survey consisting of 15 items 4-point Liker-scale questions, which were targeted at 70 HRTA members (secondary school science teachers in Hungary) revealing the relevance of Urban Science elements present in the Hungarian educational policy documents (and referred to in the Urban Science application) in the light of their practice; completed by 58 teachers;
- in the second cycle the results of the first cycle survey were sent for 20 practitioners (education experts, academia, non-school organisations) for reflection (agree / disagree/ no idea); completed by 20 practitioners;
- in the third cycle the overall results discussed in an online conference with 5 science teachers (that are potentially participating in the project, also in a form as a high-level expert group).

Panel discussion at a face-to-face meeting with teachers at HRTA's annual conference (8 teacher participants of the panel discussion: Szilvia Tóth and Istvánné Tari from Bessenyei György Gimnázium, Kisvárda, Dezső Sikó from Kecskeméti Református Gimnázium, Ákos Szulik from Dunaújvárosi Szakképzési Centrum Rudas Közgazdasági Szakgimnáziuma és Kollégiuma, Dr. Éva Dobóné Tarai from Berzsenyi Dániel Gimnázium, Budapest and Zsuzsanna Dr. Nyerkiné Alabert from Lánczos Kornél Gimnázium, Székesfehérvár, Jánosné Bodó from Pécsi Tudományegyetem Gyakorló Általános Iskola Gimnázium Szakgimnázium és Óvoda and Sándor Orbán from Budapesti Műszaki Szakképzési Centrum Neumann János Számítástechnikai Szakgimnáziuma), discussing WAGOLL ideas of Urban Science teachers and students – teachers covered all relevant subject fields and age groups, 4 male and 4 female teachers were present.

Secondary Research

Secondary research was conducted into the state-of the-art of 'urban science' in educational policy documents and the available good practice in Hungary in that field.

(1) Curriculum Review: Desk research on the presence and the context of some Urban Science keywords (taken from the application, including: big ideas in science, inquiry-based learning, outdoor learning, using scientific evidence, active learning, hands-on activities and investigation, student autonomy, sustainability, health and global education, critical thinking, career orientation, problem solving, collaboration, informed decision-making) in the national core curriculum and the science frame curricula (Biology, Chemistry, Geography, Physics) for grades 7-8 and 9-10.

(2) Output criteria: Examining how relevant the upper concepts are in the concepts of national competency surveys and the science school-leaving exams.

(3) Relevant International Projects: (with HRTA participation) S-TEAM (5E model and simple concept of IBL trialled in 26 countries in and around Europe), Ark of Inquiry (competency-based assessment for IBL), CoDeS (supporting collaboration, living laboratory concept), Spice (knowledge transfer of good practices across European countries, criteria for transferable learning modules), Rounder Sense of Purpose (simple teacher sustainability competence framework)

(4) Relevant National Projects: Developing Complex IBL Science Teaching-learnin Modules for all-day schools in Hungary, Broadening the horizon of science teaching and learning in Hungary (TUDÁS).

These results formed the basis of the first survey in the Delphi research (1) and gave a reference basis for the further panel discussion (2,3,4)

2. Summary of barriers and opportunities recognized, including all investigation areas

Strengths	Weaknesses
● Outdoor learning is an integral part of curricula (compulsory minimum is given). ● Active learning is a part of curricula. ● Inquiry-based learning viewed positively as way to engage students. ● Teachers are familiar with the core ideas inquiry-based learning. ● Most elements of Urban Science are included in the policy documents. ● Teachers are motivated to experiment with innovative methods and complex ideas. ● Sustainability is explicitly present in all policy documents. ● Teachers have experience in and motivation for working with sustainability topics, ESD tools and methods. ● Teachers are keen to work with complex ideas (inter- or transdisciplinarity).	● Not all aspects of sustainability are integrated in the teaching practice: especially the aspects of economy are missing. ● Teachers' sustainability competences are weak concerning certain fields especially attentiveness, responsibility and decisiveness. ● Limited experience of transdisciplinary teaching. ● Limited experience of collaboration between teachers and other sections of the society. ● Output regulation (exam criteria) is not in line with the curricula concerning many Urban Science characteristic, namely: critical thinking, sustainability, initiatives, decision-making, student autonomy and do not encourage students and teachers to use the experience from outdoor learning. ● Teachers are not familiar with SDGs.

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Opportunities	Barriers
• Some teachers have rich experience in outdoor learning in various environments. • 'Natural phenomena' can be observed in various ways, not necessarily in the classical 'outdoor learning' settings (e.g. forest schools). • The national core curriculum prescribes projects completed by students including the same elements as the Urban Science features. • Inquiry-based learning, sustainability and outdoor learning are compulsory parts of the curricula. • Teachers recognise the need to bridge the gap between "school-reality" and daily experience of students in science learning. • Teachers are motivated to collaborate with other sections of society and parents strongly support this. • Desire for better teaching resources linking science and sustainability. • Some relevant teacher trainings are available. • Teachers are keen to work as professional individuals and to take part in innovative processes. • Teachers are interested in the opportunity of being part of an international project. • Students are enthusiastic for outdoor and inquiry-based learning. • 25% of the students in Hungary learn in schools that are part of the eco-school network (throughout the whole country, see: http://ofi.hu/hir/terkepen-az-okoiskolak) that engages members in ESD. The eco-school network is open to collaboration with Urban Science.	• Present educational policy (strict central control) and political environment disempowering teachers and discourage innovation in teaching. • School principals are deprived from their competence to make decisions concerning their schools' educational program, time frames and individual assessment methods: any "extraordinary" activities need central permission and then a paper-heavy report. • In schools where science exam results are important for students and parents, the output criteria overwrite the curricula and any development tasks. • Limited opportunities for collaboration: teachers need to ask for permission and then report to the central authority. • Time - overfull curriculum limits outdoor opportunities as well as the "sandpitch" approach to innovative teaching (including action research). • Limited collaboration opportunities between teachers of different subjects (e.g. Physics and Biology) – inter- or transdisciplinarity is mainly a result of the individual teachers' competence, training and experience and not of a collaborative approach. • Teachers are not familiar with the curricula and are demotivated to learn more about that: they mostly follow direct prescriptions from the central authorities and textbooks.

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3. Urban science student – specific science skills and competencies needed for businesses in healthy cities and low carbon economy. Describe our "dream student".

The Hungarian National Core Curriculum and the subject-based frame curricula do not describe specific learner profiles but do give a list of competences and skills to be attained by the end of each 2-year cycle.

The list bellow contains ideas emerging from the panel discussion with 8 practicing teachers.

- Autonomous: willing and able to work individually (self-motivation, self-management, self-control)
- Team-player: willing and able to work in a team, being upbeat, attentive, highly adaptable, reflective, critical, a good communicator
- Innovative: creative and reflective, thinking out of the box, seeking a solution for specific problems
- Problem-sensitive: being a good observer, sensitive and sensible for problems around and motivated to find solutions for them
- Science inquirer: able to use scientific thinking, practice and evidence to seek for answers to questions arising from their experience
- Complex (holistic) thinker: able to think beyond the subject areas taught in schools, seeks for links between facts, evidence, phenomena and own experiences and also able to consider local/regional/global aspects of problems and actions.
- Engaged: ready to initiate or to step in actions when needed – also linked to decisiveness
- Reflective: keen and able to re-think and re-consider experiences, ideas and solutions, prefers the inquiry processes to ready-made results; empowered to have own solutions and then evaluate them in the light of feedback from experience or peers.
- Intergrative mind: follows and understands different perspective and able to integrate different ideas and perspective to their own mental processes and practice

The curricula support these at the following points:

- encourages individual work and team work too
- builds on attaining scientific literacy
- support active learning including outdoor experiences too
- encourages understanding big ideas in an interdisciplinary context too
- encourages considering different perspectives regarding values, attitudes and contexts
- scientific concepts are presented in everyday life contexts
- encourages learning about the way science is practiced and represented in daily life of people (people in different roles, career orientation).

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4. Themes, topics and issues identified, which connect healthy city and science curriculum and could be interesting for teachers and students.

The National Core Curriculum and the frame curricula contains a variety of opportunities, and based on the teachers' motivation, these can be used for preparing Urban Science modules (also see Appendix 4).

Exemplars from a former project (teacher-made learning materials linking inquiry-base science learning and sustainability) are available here: http://ofi.hu/nevelesi-oktatasi-programok with a searchable database of some 80 modules in Hungarian.

Some of the Ark of Inquiry modules can also be used as exemplars, searchable here: http://arkportal.ut.ee/#/

The Ark of Inquiry platform is also suitable for sharing further learning modules with a wider community as it is open for teachers to upload materials.

5. Important concepts, interesting and actual ideas emerging from research

Despite the barriers from the present political situation in the country, teachers are motivated and keen to collaborate to pilot with innovative teaching methods.

In another project, between 2012-2015, a full review of the state of the art of science education was prepared including a survey involving 641 school principals about the opportunities of linking sustainability and science teaching and full review of policy documents, quantitative research in 641 schools and qualitative research (including focus groups, interviews and action research) in 55 and again in 8 schools. Results are available for further reflection.

- The most important lessons learnt:
- principals and teachers are not aware of their available resources
- principals and teachers are not aware of the opportunities provided by the curricula, they base their concepts on textbook contents
- when given appropriate support, teachers are willing and able to work with complex ideas, linking inquiry-based science learning and sustainability
- in these cases, collaborations were formed within the local communities
- the concept of living laboratories started working after at least 6 month of mentoring support from researchers and experts to teachers
- teachers were eager to share

Links:

http://tamop2014.tok.elte.hu/dok/szakmai_anyagok/tp_modszertani_anyagok/Vitalyos_2014_Fenntarthatosagra_neveles.pdf)

http://ofi.hu/tamop311/szakmai-program/3-alprojekt-neveles/4-tema

6. Other important information

In the project referred to in section 5 a set of 8 success criteria was set.

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Appendix 1

Description of a good practice/initiative ONE:

In previous projects, there are a number of lesson plans and modules available, which could serve as a basis for creating new learning modules for Urban Science projects. In Hungary, some environmental education projects produced lesson plans that connect outdoor learning and inquiry-based science education; others use public science, urban problems (such as transport or carbon emission, for instance) for improving inquiry-based science learning; again some focus on sustainability and collaboration exploring the opportunities on the living laboratory model. However, these good practices and initiatives focus on some but not all specific characteristics of the urban science education as identified in our research and partly or completely miss out on some other essential features. Therefore, they can be adapted, partly or entirely, to a new module with the notion that some missing characteristics need to be brought in the learning cycle: some of them can serve as an engagement activity, others as a good hands-on experience, yet others as an inspiration of how students' work could be organised.

Most of these modules that are already available have weaknesses regarding how they involve all sustainability aspects (typically they neglect economy) and some of them would not complete a whole inquiry circle or would not allow space for real scientific inquiry. Nevertheless, they can be inspiring for teachers, and moreover, many of them are supported by appropriate research (from action research to quantitative assessment of learning outcomes). Thus, although it would be incongruous to use the term 'urban science' as meant in the project for them, they serve as a valuable collection of quality educational materials.

An exemplar lesson plan draft:

This lesson plan was published in a periodical called Biology Teaching in Hungary. It was a result of collaboration between university science researchers, teacher educators and a science teacher who also worked as an environmental educator. The lesson plan was developed in collaboration then piloted by the teacher. It is well documented and even the students' activity contributed to the data collection which resulted in a scientific paper. The lesson's structure follows the 5E model (a popular inquiry-based learning cycle model in many countries including Hungary) and the science investigation part is well established, simple but deep.

The draft version bellow gives an overview of the activities of the learning cycle:

Engage	Students collect some ideas pro and con about glass surfaces of buildings.
Explore	Students make observations about insect fauna on huge glass wall buildings and collect data about birds around them.
Explain	Students measure light reflection (polarized light quantity) on such surfaces. They compare data.

Elaborate	They compare data from other building types / natural habitats. Also they observe or look for the ecological characteristics of species identified. They present their data in the same groups as they had been working. They organise a forum for inhabitants of the district where an architect presents his new design of a new glass wall building. (Role game) They discuss about polarized light pollution and how undesirable effects could be minimised.
Evaluate	They underline main conclusions. Follow-up or parallel task is observing the same with dark shiny cars.

Strong points and opportunities:

Clear learning sequence with a strong science background also supported by scientific papers. Many divergent science topics can be included, from taxonomy to ecology, from Physics (optics) to chemistry (surface active agents, water). It uses the 5E model which is the most popular inquiry-based learning model in Hungary.

Weaknesses recognized:

The learning module completely misses on economic aspects of sustainability – which can be added to that. Also, the learning module does not encourage students' involvement in taking actions for their future environment.

Added value with regards to urban science:

It provides an exemplar for simple, time-efficient outdoor learning which can be taken to various levels of scientific inquiry based on the age and the skills of the students.

Links, resources, contacts:

Gánóczy, Anita (2009). Nagyvárosi ökológia: folyóparti épületek hatása vízirovarok rajzására (City ecology. Effect of riverside buildings on the attrition of water insects. Biology teaching, Vol. 2009, Issue 3.

Similar lesson plans or investigations are available in the following book: http://ttomc.elte.hu/sites/default/files/kiadvany/kriska_modszerek_ttk_66_15_2015_0.pdf

Various other examples exist in Hungarian, which can be integrated to an Urban Science module.

Resources of 5E IBL learning sequences for science and sustainability topics, grades 1 to 8 including mixed groups (overall 172 modules in Hungarian with assessment tools):

http://ofi.hu/nevelesi-oktatasi-programok

5E model (amongst many others):

http://www.kacee.org/files/Inquiry%20&%205E%20Instructional%20Model.pdf

https://files.eric.ed.gov/fulltext/EJ1058007.pdf

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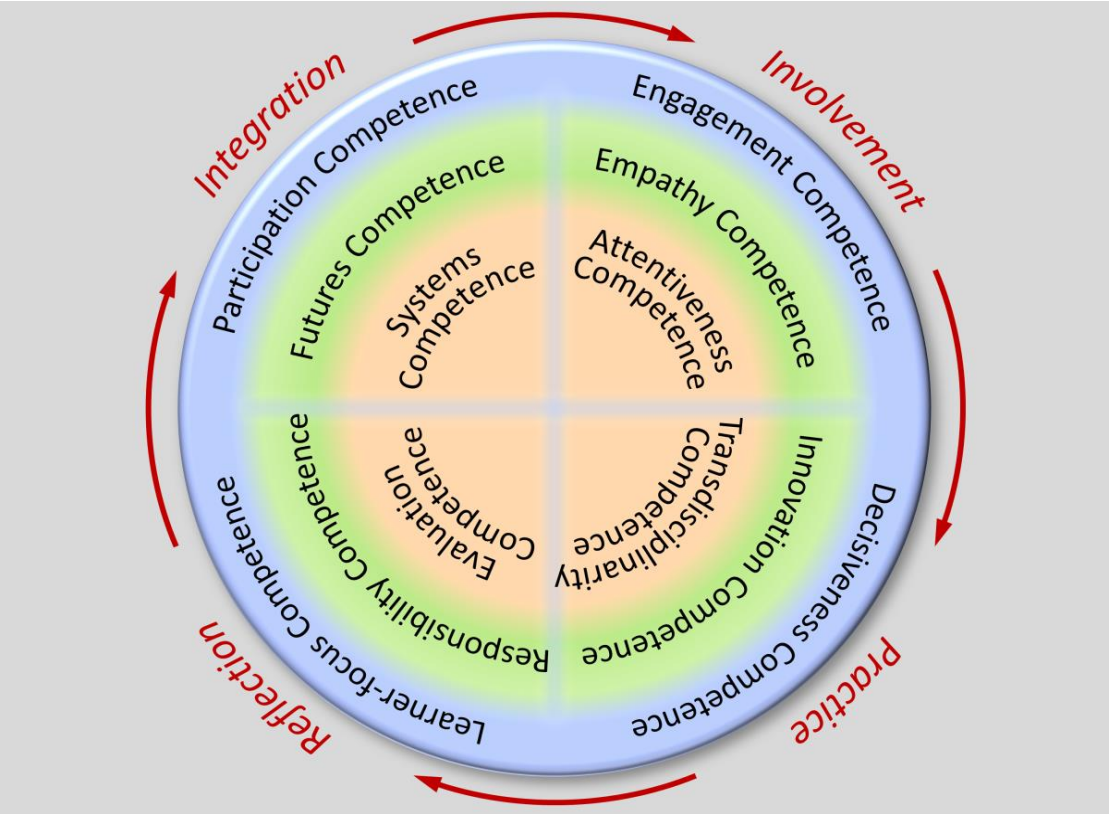
Description of a good practice/initiative TWO:

Rounder Sense of Purpose Competence Framework

It is a teacher competence framework for ESD competences.

Holistic Approach	*Envisioning Change*	*Achieve Transformation*
Integration:		
Systems Competence The educator applies a systemic approach, moving flexibly between different perspectives and levels of complex natural and human-made systems.	**Futures Competence** The educator uses ways of imagining a range of futures as a source of inspiration.	**Participation Competence** The educator contributes towards transformations of education and, through this, towards societal transformations for sustainable development.
Involvement:		
Attentiveness Competence The educator is aware of and alert to structural causes of unsustainability and the urgent need for change.	**Empathy Competence** The educator engages with emotions of others in a constructive manner.	**Engagement Competence** The educator acts from a personal sense of involvement and commitment.
Practice:		
Transdisciplinarity Competence The educator acts collaboratively both within and outside their own discipline, role, perspectives and values.	**Innovation Competence** The educator places their work within a real-world context, demonstrating innovation and creativity.	**Learner-focus Competence** The educator focuses on the development of the learners towards critical and actively participating members of society.
Reflection:		
Evaluation Competence The educator critically evaluates the relevance and reliability of assertions, sources, models and theories.	**Responsibility Competence** The educator accepts personal responsibility for their work, critically evaluates it, accepts to be held accountable for it, and acts transparently.	**Decisiveness Competence** The educator acts in a timely manner, based upon well-considered decisions, even in a context full of uncertainties.



Strong points and opportunities:

It is a clear model that teachers understand easily. It is suitable for self-checking and self-reflection supported by simple tools (e.g.spiderweb).

Weaknesses recognized:

Not all teachers are familiar with self-reflection tools.

Added value with regards to urban science:

It could be used as a first tool for Urban Science project members to reflect on a module while piloting with it, seeing which competences it requires and how it translates into students' ESD competences.

Links, resources, contacts:

Coming soon: http://aroundersenseofpurpose.eu/

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Description of a good practice/initiative THREE:

Living Laboratories model

This is a part of a publication called Travelling Guide for schools and communities collaboration for sustainable development. The following text is the draft written by Arjen Wals and I find it clear and inspiring for designing urban science learning environments.

Some leading questions to think about when designing urban science learning environments:

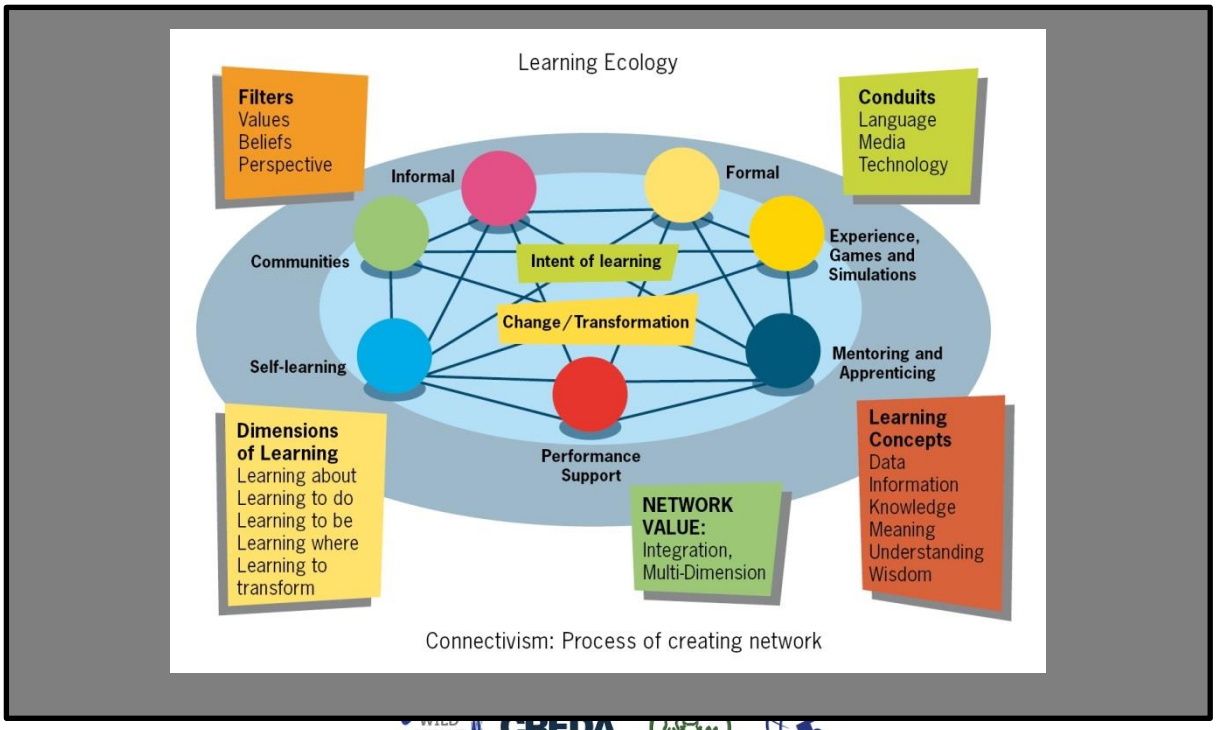
How can we create space in the school curricula for not just 'thinking out-side of the box' but for learning 'outside of the classroom'?

How can the school itself, the physical space outside of the school and the community of which a school is part become a ' living learning laboratory for sustainability' ?

How can societal groups (schools, neighbors, local businesses, NGOs, municipal government workers, etc.) become engaged in learning from and with each other in order to help realize each other's goals as well as the ones they have in common (without always being aware of that)?

What kind of capacities and forms of professional development are needed for teachers to become facilitators of vital coalitions and living learning laboratories?

How can the learning taking place in those coalitions and laboratories be made more explicit and become part of the formal curriculum? How does it already contribute to teaching the formal curriculum?



Connectivism: Process of creating network

In our search for a more live-able, equitable, enjoyable and, indeed, sustainable world we are increasingly finding that conventional approaches of teaching and learning are not the most suitable in engaging people in the grand challenges of our time. Perhaps our refined ability to reduce and divide the world into artificial categories and false opposites (e.g. disciplines-subjects, formal- non-formal, public-private, school-community, young, old, expert-novice, scientific- non-scientific, virtual-real, etc.) has helped us in understanding and describing the world and in giving us a sense of comfort and control. However, it does not help us in seeing relationships, dealing with complex issues, handling uncertainty and connecting people and people and places. Moving towards a more sustainable world above all seems to require that we let go of traditional distinctions and binaries (e.g. 'us and them,' 'right and wrong,' 'sustainable and unsustainable') and instead seek-out forms of teaching and learning that allow us to cross-boundaries and establish vital relationships with people and places that will ultimately lead to the wisdom we need to live meaningful and responsible lives.

In response to this call, schools need to become partners in vital coalitions between different societal groups seeking to jointly improve the local conditions (e.g. with respect to food, nutrition, health, energy, climate, water, participation, social cohesion, diversity, housing, etc.) while being mindful of the larger planet, other species and generations to come. Working collaboratively on real issues, linking them to the school curriculum, taking advantage of ICTs but also of new forms of learning (e.g. social learning, experiential learning, action learning) and the resources available in the wider community, can create 'living laboratories' for experimenting, trying-out, testing and learning from sustainability-in-action. Not only does this provide a new sense of purpose, accomplishment and empowerment, it also could yield the kinds of competences that appear crucial in the years to come (e.g. systems thinking, utilizing diversity, community problem-solving, empathic understanding, conflict management, handling socio-scientific disputes, dealing with moral and ethical dilemmas and competing claims) but play a marginal role in our current education.

George Siemens (2005) speaks of a 'learning ecology' to emphasize that connectivity between people is influenced and can be strengthened by a number of inter-related factors that together shape a vital coalition of learners. The figure shows how a learning ecology is a networked, facilitated and mediated constellation of formal and informal forms of learning. Within this constellation multiple stakeholders jointly work towards the resolution or, at least, improving an authentic sustainability challenge. We like to think that schools can become key players within vital coalitions working towards sustainability, provided that space is created and support is provided for teachers and students to do so. In this chapter real-world examples are presented and discussed of schools taking up this new role.

Suggested reading/further references

Siemens, G. (2005). Connectivism: Learning as Network-Creation Printed on-line by The American Society for Professional Development (ASPD). Retrieveable via: www.astd.org/LC/2005/1105_seimens.htm (last accessed, February 11, 2011).

Wals, A.E.J., van der Hoeven, N. and Blanken, H. (2009). *The acoustics of social learning: designing learning processes that contribute to a more sustainable world*. Utrecht/Wageningen: SenterNovem/Wageningen Academic Publishing. Retrievable via: http://www.senternovem.nl/mmfiles/acoustics-digital%20def_tcm24-290164.pdf

Strong points and opportunities:

It is a model for designers of learning environments: those who mentor teachers may find it useful for pointing ot some features and also for checking if the learning environment proposed could indeed provide a living laboratory as intended. It is not a recipe or prescription to follow.

Weaknesses recognized:

It is not meant for the practitioners but for those who support practitioners. It doesn't give hints on how to design the environment proposed.

Added value with regards to urban science:

It could be used as a tool for Urban Science project members to reflect on a module while piloting with it, seeing how to improve the learning environment and if a proposed living laboratory could in fact qualify as such.

Links, resources, contacts:

The full publication in English (also translated into German and Hungarian):

https://ensi.org/global/downloads/Publications/364/CoDeS%20Travelling%20guide.pdf

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Appendix 2

Success criteria for use of the urban environment for teaching science

*In a project, we will focus on the design of learning activities that connect science with the **real life of pupils**, using **urban issues** that can be investigated using scientific methodology. We will have a **solution** focus that helps pupils take action to improve their urban environment.*

1. for pedagogy:

- Empowers teachers to create or adapt Urban Science modules.
- Promotes interaction between pupils and their urban environment.
- Uses tools and methods of inquiry-based science learning.
- Develops students' (life and science) skills in the context of science learning and sustainability.
- Bridges the gap between school science reality and the students' experiences and environment.
- Inclusive for all students including marginalized groups and gender.

2. curriculum

- Links science content and topics to sustainability and vice versa.
- Improves students' science competences.
- Increases understanding of urban science issues.
- Increased ability to apply competencies to challenges for creating healthy cities and a low carbon economy.

3. topic/subject:

Most topics in the National Core Curriculum can be integrated.

4. mode of delivery

- Strong focus on formative assessment and tracking progress.
- Uses gender-sensitive and inclusive pedagogy.
- Uses techniques of inquiry-based science learning (e.g. design-based, project-based, research-based learning, collaborative learning).
- Focuses both on individual engagement and team-work, empowering student autonomy.
- Links learning with careers and practical application of science.

5. structure of the resources:

- Easily accessible and searchable from different perspectives (e.g.: age groups, main topics, teaching methods).

- Creates a legible platform.
- Supports and encourages adaptation over cookbook-like copying.
- Improves sharing of effective practice and resources in science

6. Other important criteria

- All modules are piloted by teachers in real schools and reflected on.
- Positive change in awareness levels amongst pupils towards science study and science careers.
- Improves decisiveness and taking initiatives in students to improve their future environment.
- Encourages students to use scientific evidence for decision-making and problem-solving.
- Improves students' problem-sensivitity.

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Appendix 3

National Curriculum Review

The Hungarian educational regulation for this age group consists of the following documents: the National Core Curriculum and the subject-related frame curricula for school types.

The National Core Curriculum (216 pages) describes key competences, key development areas (tasks) and defines the cultural domains in which these should be put to practice.

From the Urban Science aspect, the most relevant

- key competences include: science and technology, social and civic, initiative and entrepreneurial,
- key development areas include: ethics, civic competences, self-awareness and social culture, health, responsibility, environmental awareness and sustainability, career orientation, economical and financial awareness
- cultural domain is: Man and nature.

The National Core Curriculum refers to overarching ideas and defines basic content. It is competence-based, and is working with cycles for years 1-4 (age 6-10), 5-8 (age 10-14) and 9-12 (age 14 – 18).

The cultural domain Man and nature is organised around 7 overarching ideas:

1. Science, technology and culture
2. Matter, energy and information
3. Systems
4. Connection between structure and operation
5. Steadiness and change
6. Learning about the human being
7. Environment and sustainability

Each of these big ideas are understood in the following contexts:

horizontal areas:

- health (prevention, life-style and well-being, public health and medicine)
- natural resources (using resources and energy, efficiency, diminishing resources)
- state of environmental systems (models and prediction, climate chance, vulnerable living systems, biodiversity, pollution and waste)
- science and technology (using scientific evidence, technological systems and their effects, need for social control and its mechanisms).

vertical areas:

- individual (individual life situation, individual environment, individual tasks and responsibilities)
- family (household, small communities, shared rules, strong cooperation and shared responsibility)
- local community (local settings, collaboration and responsibility)
- society (national systems, uniform regulation and responsibility)
- global (Earth's global systems, nations' community, international collaboration)

Based on the national core curriculum, the frame curricula define exact

- content embedded in contexts
- development tasks (again, competence-based)
- suggested teaching-learning methods
- suggested time frame (hence the name frame curricula)
- minimum criteria

for every subject area in 2-year cycles.

Based on the frame curricula teachers are obliged to prepare a local curriculum for each class they work with.

However future-leading these documents are, turbulent changes affecting frame curricula and output regulations, disempowered and demotivated teachers, who mostly use some central sample documents as a basis for preparing their local curricula. Therefore, in many cases, they are not aware of the opportunities that the National Core Curriculum would provide for them and are not even motivated to read the most basic policy documents. They mainly rely on textbooks or other ready-made resources. The central control also discourages individual efforts for innovative teaching. On top, the government plans to revise the whole policy document setting including the core curriculum and the frame curricula in 2018-2019.

Policy documents:

- National Core Curriculum: Act on National Education LXIV/2012
- Core Curricula: Minister of Human Resources Decree 51/2012. (XII. 21.) modified and corrected as 23/2013. (III. 29.), 6/2014. (I. 29.), 34/2014. (IV. 29.), 40/2015. (VIII. 28.), 11/2016. (VI. 13.), 22/2016. (VIII. 25.) 23/2016. (VIII. 30.) and 4/2013. (I. 11.)

Links (in Hungarian):

http://ofi.hu/sites/default/files/attachments/mk_nat_20121.pdf

http://kerettanterv.ofi.hu/