Urban Science

Partner Meeting 4

Minutes

UK 7th to 11th July 2019

1. Welcome and Introduction

We started the meeting with a brief personal check-in about project progress.

Stoyan – a little behind as expected but all bases in place for the final year.

Edit – several teachers interested in the project and developing modules together with teachers; here representing Monika and Ildiko who are unable to attend.

Daniela – feeling that everything is going well; trial results from three schools are interesting; it is a nice project and the teachers are willing to engage.

Luca – teaching final model framework is interesting; a simple and new approach.

Margaret – difficult engaging teacher but we have done it.

Ela – teachers strike all April and now catching up time for teachers but have started trialling and results are positive to date; more focus on preparing materials for trialling; 6-7 schools engaged for trialling from September.

Joanna – interesting translating the partners modules; stressful with the teachers strike but looking better now.

Inese – busy and a little late; potential of a teachers strike in September; schools busy with curriculum reform so trialling results only just received; overall feel the project timing is good with curriculum reform and Urban Science is a good fit for the future, especially zero waste module because some towns are declaring their intention to become zero waste.

Linda – stressful dealing with teachers and getting feedback; they need constant reminders.

2. Results of Urban Science Module Trialling

Each partner presented the results of their trialling; a brief summary is below.

Poland – air quality modules trialled with one school successfully; they liked the topic especially the fieldwork element and 6-thinking hats activity. Students used the results of their experiments to

write to the local government about the issue. The biggest challenge for teachers has been delivering the fieldwork which was done as homework and working between several subjects. Trialling of the UV Light module has also taken place although with less time. Overall the Urban Science approach has been welcomes although teachers prefer to choose their topic rather than be allocated a theme. There did not seem to be any challenge with either a 4 or 5-stage IBSE cycle.

Latvia – modules have been piloted in three schools including 6 teachers and 253 pupils. Some feedback suggested that the concept of zero waste is challenging for pupils to grasp. But overall the results of trialling are positive.

Bulgaria – modules have been piloted in two schools and used as part of a summer academy. Teacher feedback is generally positive although some suggest it is difficult to fit such work into the curriculum because the school is already very busy; this is despite positive feedback on the materials. Ran a small competition in which 16 school teams entered their ideas for 'What is the value of nature for our city?' resulting in the winners attending a summer academy. As usual, the Bulgarian education system continues to be harder and harder to work with.

Hungary – piloting has taken place with 10 teachers who are also involved in co-developing the modules using an action research methodology. The module themes are: sounds in the city; biomimetic shelters; toilets in the city; public transport; city playgrounds; alternatives to city buildings; polarised light; pavements; city markets; heatwave. An introduction module has also been created based on looking back from 2130 when climate change has been solved; this frames all the other modules.

Italy – trialling has taken pace with four schools and three topics. Overall 162 pupils were involved and 10 teachers. Evaluation against the project quality criteria is good with some known improvements needed. The modules have certainly engaged pupils, with one group of 'challenging' pupils reporting an interest in maths which never existed before.

UK – trialling on the UV Light and Grow Wild modules have been completed with three schools. Feedback is generally positive and teachers found the activities easy to adapt to their school needs. Taking pupils outside is as ever a challenge for teachers, but especially with the UV Light module this has not proved to be a barrier.

3. Review of Learning Modules against Quality Criteria

Each of the modules was reviewed against our quality criteria. Review was only done against those criteria that were felt to be insufficiently met at TPM3.

See table below (1 = good fit; 2 = good fit after some know edits; 3 = more work still needed; 4 = not enough information (this refers only to Hungary and only because the Project Manager could not attend the meeting)).

	Criteria (see M&E plan for full description)	**LV**	**BG**	**IT**	**HU**	**UK**	**PL**
For teachers	Ownership	2	3	1	1	2	2
For pupils	Decision-making / problem solving	1	1	1	4	1	1
	New futures	1	1	1	1	2	1

	Interconnections	2	2	2/1	4	2	1/4
	Sustainable cities	1	2	1	1	2/1	2/4
For the learning modules	Science and sustainability	1	2	1	1	2/1	2
	Big picture	2	2	½	1	2	1
	Values and future	2	2	2	1	2	2
	Work of scientists	2	1	1	2	1	2
	Health and safety	2	1	1	2	1	2
	Low carbon future	2/1	1	2	2	2/1	1/2
	Learning outside the classroom	2	1	1	1	2	1

Note: two numbers refer to scoring for two different modules.

During discussion of the results it became clear that greater effort needs to be made so that teachers realise the connections between different Urban Science themes and communicate this to pupils.

Sustainability Competences

Trialling has demonstrated that these are far too complex for teachers to engage with. IT was decided to create a simplified set of progressive sustainability statements through which to assess learning.

Action:

- Prepare and share sustainability competency statements by 15th September (Daniela).

Timeline for Completion of Learning Modules

Actions:

- All module details added to Google Drive summary table by 19th July.
- All trialled modules to be edited and uploaded to Google Drive by 30th September.
- All modules with trialling outstanding, to be completed and uploaded to Google Drive by November 30th.

Urban Science Quality Criteria

In reviewing the modules, we came to the conclusion that our Quality Criteria require small working changes to make their clearer and more achievable. The changes are show below:

As a result of Urban Science teachers will:

- Use Urban Science resources which offer flexibility and ownership. ~~Feel ownership of Urban Science.~~

As a result of Urban Science pupils will:

- Use scientific evidence for decision-making and problem-solving.
- Be able to envision new futures for cities.
- Be able to apply interconnected and linked thinking to understand complex problems.
- Be able to relate learning to challenges related to sustainable cities.

The learning modules will:

- Strongly connect science and sustainability.
- Provide activities linking urban topics to the bigger picture (systems).
- Includes values and future perspectives.
- Connects science with the work of scientists.
- Uses a clear IBSE pedagogy (working scientifically in UK).
- Include out of the classroom learning.
- Focus on a low carbon ~~economy~~ future.
- Provide clear health and safety guidance.

4. Urban Science Introductory Modules

To tie the modules together and provide a greater sense of the overall contribution of science to more sustainable cities, it was decided at TPM3 to create introductory modules. These are additional to the original proposal but felt extremely helpful to successful delivery. Modules include:

UK – climate change and sustainability introduction; this ensure common understanding of science and terms before a module is delivered; table about 45 minutes; completed.

Hungary – Future scenarios; based on looking back from 2130 once climate change has been stopped and how this happened; piloting in August and draft English version by 31st August.

Bulgaria – city resource flows; an interactive game showing resource flows into and out of a city compared with a model from nature; 45 minute lesson; still under development.

Bulgaria – planning my future city; 80 minutes.

Italy – PlayDecide climate change; 90 minutes; see PlayDecide website.

Latvia – future city; using WWF Living City cards and sustainability terms to envision the future of cities; possibly use of connection circles; 90 minutes.

Action:

- Draft 2130 future scenario module by 31st August (Hungary).
- Check copyright for WWF Living City images (Latvia with help from Italy if required).
- Share modules on Google Drive by 30th November (all).

5. Teacher Training

We discussed the teacher training both face-to-face and online. We confirmed the number of target teachers which is 50. These should be STEM teachers who will potentially use the developed learning modules.

It is clear that each country has different requirements for training teachers, for example in Hungary accrediting the training will attract teachers whereas in the UK training will need to be short and delivered at times easy for teachers to attend.

Each training event must gather evidence of success including sign-in sheet, agenda, evaluation, etc.

A self-guided online set of resources will be developed by Stoyan and shared with all.

We discussed the key areas that training might cover. We reviewed the results of trialling to indicate the content of the training, noting that the focus will differ in each country dependant on teacher and local needs. Key content area to be drawn from:

- Big picture – provide clear guidance on how the learning modules link with sustainability.
- Student futures – demonstrate how learning modules link with the lives of students and their future.
- Cities – these are the context for all out learning and this needs to be clear.
- Low carbon future – links with student futures above.
- Assessment and evaluation – an important element for some countries.
- Outdoor learning – this needs to be a strong element in all training from all partners as far as possible; ideally activities will be demonstrated outside.
- Interconnectivity – the city as an inter-connected system (linked with Big Picture above).
- Values – it is not only science that will guide the future, we need to consider how we choose where to apply the science.
- Connecting with the work of scientists – the use of IBSE and skills such as data collection and measuring provides clear links with the work of scientists which needs to be highlighted.
- Curriculum – learning modules link with and support the curriculum.

Action:

- Check if 50 teachers must all be different (Richard).
- Create set of common evaluation questions by 31st August (Ela).
- Create draft of online materials by 31st January (Stoyan).
- Deliver training (all partners).

6. Competency-based Assessment

Stoyan guided us through the results of our work. We have a completed list of tools and sample rubric.

Action:

- Guidelines for teachers by 30th November (Monika).

7. Dissemination

Inese led us through the dissemination planning and recording tables.

Action:

- All partners complete tables on an ongoing basis (all).

8. Websites

We discussed essential information which needs to be displayed on all websites and in each partner language. The list includes:

- 10 learning modules.
- Learning framework.
- Guide for competency-based assessment and links with tools.
- Good practice portfolio.
- Online teacher training/support.
- Project information (link with Urban Science website for copies in English of partner meeting notes, etc).
- Include EU logo and disclaimer.

9. Good Practice Portfolio

Although not funded, we are still committed to provided three short good practice case studies from each partner to illustrate Urban Science in action. These should provide inspiration and practical tips for teachers delivering Urban Science. The case studies could all refer to a single learning module but cover different aspects, or relate to different learning modules.

Action:

- Share template by 31st August (Ela).
- Produce 3 case studies by 30th March (all).
- Translate case studies relevant to learning modules in your language by 30th April (all).

10. Monitoring and Evaluation

We reviewed our monitoring and evaluation plan together and confirmed the data to be gathered.

We discussed the need for suitable questions to evidence student understanding and influence of Urban Science, for example:

- Urban Science helped me link with science with sustainability.
- Urban Science improves my understanding of sustainability.
- Applying science in the real-world improves my motivation to study science.

Action:

- All partners to continue gathering evidence and data as agreed (all).

11. Interim Report for EU

We reviewed the questions for the EU Interim Report.

Action:

- Send copy of last years report to partners (Richard).
- Send detailed monitoring report (narrative and financial) by 15th August (all).
- Be available for last minute questions up until 30th August (all).
- Include updated dissemination table and timesheets with the monitoring report (all).

urban science

12. Challenges and Opportunities

The dynamic learning agenda was reviewed as usual; see Annex for results.

13. TPM5

This will take place in Italy. Dates will be the 8th to 12 June (first choice) or 15th to 19th June (second choice).

Action:

- Daniela to confirm dates by 15th September (Daniela).

14. Planning our next steps

Agreed actions below:

	Activities	Who	Deadline
General Project Management and Implementation			
Monitoring and Evaluation Plan	Ensure evidence is recorded as per our M&E plan	All partners	Ongoing
Monitoring Report for EU Interim Report	Complete internal monitoring report; include timesheets and dissemination table	All partners	15th August 2019
Dissemination	Update dissemination tables and submit with monitoring report	All partners	15th August 2019
Website	Ensure up to date before 31st August (September for Italy)	All partners	31st August 2019
TPM5	Confirm dates for meeting	CREDA	15th September 2019
Intellectual Output 2: Framework for Science in the urban environment			
Sustainability competences	Provide a simplified set of progressive statements for assessing sustainability learning.	CREDA	15th September 2019
Intellectual Output 3 – Urban Science Learning Modules			
Task – Urban Science Learning Modules And Task – testing and trialling with pilot schools	Update shared learning modules table on Google Drive	All partners	19th July 2019
	For untrialled modules – complete trialling and send final version.	All partners	30th November 2019
	Send completed piloting evidence to Daniela	All partners	30th November 2019
	For trialled modules – send final version.	All partners	30th September 2019
	Select and confirm final list of ten modules for your country	All partners	14th December 2019

urban science

	Adapt and translate final ten modules (five by 15th February 2020 and then ongoing)	All partners	15th February 2020
	Learning module design – share templates for design	All partners	Ongoing
	Share 2130 future scenario module	HRTA	31st August 2019
	Share intro modules	All partners (if relevant)	30th November 2019
	Check copyright of WWF images	BVS	Ongoing
Intellectual Output 4: Competency Based Assessment			
Task – Guidelines for Competency Based Assessment	Final guidelines produced.	EEA & HRTA	30th November 2019
	Tool for self-evaluation by students	EEA & HRTA	31st October 2019
Intellectual Output 5: Teacher Support			
Task – teacher training course	Common set of evaluation questions	GRID	31st August 2019
	Deliver training	All partners	31st May 2020
Task – Online teacher support	Present draft	EEA	30th January 2020
Intellectual Output 6: Sharing the lessons learnt			
Task – create online presence	Website – continue updating with progress.	All partners	Ongoing
Task – good practice portfolio	Share case study template	GRID	31st August 2019
	Produce three case studies	All partners	30th March 2020
	Translate case studies relevant to your ten modules	All partners	30th April 2020

urban science

Annex – dynamic learning agenda

Based on our initial research, changes to the challenges have emerged. Changes shown in red.

Outside our control:	We can influence but not control:	Within our control:
• Austerity means other stakeholders unable to join/support us (UK, It). • Over-crowded curriculum (UK, Lv, HU, It, Pl). • Lack of state institutional support (Bg, It, UK). • Low level of innovative spirit amongst teachers (Bg). • Teacher retention and shortage (UK). • National curriculum reform makes teachers busy and creates confusion; resistance to additional work (LV, ~~PL,~~ BG). • Teachers move schools to improve career (It). • Changes to Ministry of Education regulations in January 2018 make is far harder for teachers to receive permission to attend out of school events during school hours. BG teachers encouraged to use external resources but increased administration to get permission…easier than before (Bg) • Teacher shortage limits time (HU)	• Incorrect and lack of sustainable development understanding amongst teachers (UK, Pl, It). • Incorrect and lack of sustainability understanding amongst teachers (Pl, It) • Creating a shared vision (Hu). • Outdoor learning has 'low' status (UK, It). • Narrow understanding of outdoor learning – more than just sensory-based learning (~~Lv,~~ It). • Interdisciplinary learning still a ~~new~~ challenge (Pl, LV). • Active teachers more interested in personal Erasmus+ projects (Bg). • Limited number of active teachers and limited time (Bg, LV). • Limited number of 'active' students (Bg). • Limited curricula time (Bg, It). • Limited diffusion and of IBSE approaches (It). • Teachers struggle to find collaboration to deliver outdoor learning (It). • Local authority support for pilot schools available (UK) • Content is ahead of teachers willingness to deliver (Bg) • Support from local education authorities difficult to obtain (IT, UK).	• Keeping teachers motivate and recognising their efforts (Hu). • Not just monitoring state of urban environment, but working towards solutions too (It, PL). • To make complex issues simple to understand without simplifying (It, Hu). • Clearly communicate what is Urban Science (It, Pl, UK, HU). • How to benefit from intercultural learning (Hu). • Providing clear scaffolding for teachers without over-burdening them (Hu). • Creating relevant, user-friendly and idiot proof assessment (Hu). • Mainstreaming and raising awareness of Urban Science (Hu). • Subject association support available – ASE (UK) • Engaging external partners to support schools in delivery (PL).


urban science
