

E-Learning from Nature: Irish experience and results of an Erasmus+ project collaboration

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Erasmus+



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ACTIVE LEADERSHIP IN
EDUCATION, ENTERPRISE
AND ENGAGEMENT



E-Learning from Nature

- Project funded by the European Commission and the Italian National Agency for Erasmus+ programme.
- Involved collaboration between eight partners from seven countries to promote innovative teaching and learning methods in Science, Technology, Engineering and Maths (STEM) subjects

E-Learning from Nature Partnership



Organisation	Country	Role
I.I.S. "F. Enriques"	Italy	Project Scientific Co-ordinator
PIXEL	Italy	Project Managers
Epimorfotiki Kilkis SM LLC	Greece	Partner
Trakai Educational Assistance Authority	Lithuania	Partner
Inforef	Belgium	Partner
Instituto Politécnico de Bragança	Portugal	Partner
Fundația EuroEd	Romania	Partner
Limerick Institute of Technology	Ireland	Partner

Table 1: E-Learning from Nature Project Partnership

E-Learning from Nature - Ireland



Partner Organisation	Location	Geographical Area of Interest
St Caimin's Community School	Shannon	River Shannon
Glenstal Abbey School	Limerick	Glenstal Abbey Estate
St Joseph's College	Tipperary	Devil's Bit and North Tipperary
Tallaght Community School	Dublin	Dublin Bay
St Mary's Holy Faith Convent	Dublin	Tolka River at Glasnevin

Table 2: Irish schools in project partnership

E-Learning from Nature – Associate Partners



These **associations** are important for the **sustainability** of the project and **exploitation** of the project outputs.

Seven Associate Partners agreed to help with promotion of the project:

- Centres for teaching and learning,
- Teachers' representative associations,
- Environmental organisations
- Primary school.




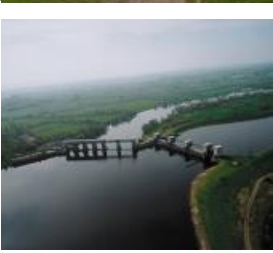



Intellectual Outputs



- **Database** of areas of interest
- Each school produced **five** video **E-lessons** with accompanying teachers' notes.
- Majority were Biology related.
- Tools used:
 - *Screen-Castomatic*
 - *Microsoft Movie Maker.*

E-Learning from Nature: Database

Picture	Name of the local area	Thematic Areas
	<u>Devil's Bit and North Tipperary</u>	Geography, Chemistry, Biology, Geology
	<u>Glenstal Abbey Estate</u>	Geography, Chemistry, Biology, Geology
	<u>Malahide and Portmarnock Dublin Bay</u>	Geography, Chemistry, Biology, Geology
	<u>River Shannon and Wetlands at Shannon Town</u>	Geography, Chemistry, Biology, Geology
	<u>Tolka River and adjacent banks at Glasnevin Dublin</u>	Geography, Biology, Geology

E-lessons

- Videos – based on geographical areas of natural interest
- Subject guidelines
- Teachers' notes
- Age appropriateness

A table listing e-learning lessons, each with a small video thumbnail on the left. The table has columns for lesson title, subject, and duration. The lessons include: 'E-learning from nature; life on the rocky shoreline' (Geography, Biology, Geology), 'E-learning from Nature: Air Resistance' (Physics), 'E-learning from Nature: Changes in physical factors between ground level and the top of the Devil's Bit mountain' (Chemistry, Physics), 'E-Learning from Nature: Chloroplasts and Photosynthesis' (Biology), and 'E-learning from Nature: Comparison of soil samples from two sites in County Tipperary which are reputed to be linked' (Geography, Chemistry, Geology).

Thumbnail	Title of the lesson	Subject	Duration
	E-learning from nature; life on the rocky shoreline	Geography, Biology, Geology	
	E-learning from Nature: Air Resistance	Physics	16, 15
	E-learning from Nature: Changes in physical factors between ground level and the top of the Devil's Bit mountain	Chemistry, Physics	17, 16
	E-Learning from Nature: Chloroplasts and Photosynthesis	Biology	16, 15
	E-learning from Nature: Comparison of soil samples from two sites in County Tipperary which are reputed to be linked	Geography, Chemistry, Geology	17, 16

Active learning

- The learning cone links to Bloom's Taxonomy
- Promotes the theory that students learn better by doing
- Promotes the value of peer teaching and learning



Source: National Training Laboratories, Bethel, Maine

Teachers' Guide



4 chapters:

1. Teaching scientific subjects through problem based and real life case scenarios.
- 2. Enhance students' scientific basic skills through their active involvement in the learning process.**
3. Effective use of new technologies to promote the scientific knowledge
4. Transnational cooperation to promote scientific knowledge in school education

Chapter 2 Teachers' Guide



- The Irish and Portuguese partners collaborated in the production of Chapter 2.
- **Enhance students' scientific basic skills through their active involvement in the learning process.**

General introduction and then further sub-divided:

- Chapter 1 - Peer-learning education
- Chapter 2 - Methodologies for peer-learning education
- Chapter 3 - Other methodologies for students' active involvement
- Chapter 4 - Case studies

E-Guide



- Each chapter was developed and evaluated by other project partners on the Partnership Forum.
- Feedback from other partners informed the final contents of the chapters.
- Intention: to publish this guide as an E-book to ensure it is more widely accessible.
- Each of the sub-divisions includes reference notes and links to on-line resources.
- For example, in sub-chapter 2 on Methodologies for peer-learning the tools on the following slides are described:

Randomisers:

- Can be as traditional as picking names out of a hat, or assigning numbers and then making matches,
- or have the students pick up a colour-coded lollipop stick and matching colours to make groups.
- There are also a number of 'apps' that allow randomization of groups.



The Jigsaw method:

- Method of organizing classroom activity that makes students dependent on each other to succeed.
- Breaks classes into groups and breaks assignments into pieces that the group assembles to complete the (jigsaw) puzzle.
- Each member of a group learns a particular piece of information and then the group shares the information until everyone has learned all of the necessary material.



e-learning
FROM NATURE





Think-Pair-Share Strategy



Think
about the question



Pair
with your partner



Share
your ideas with
others

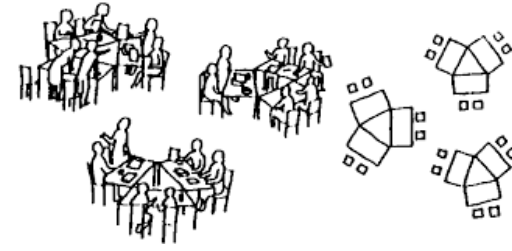
Cooperative learning technique.

Three distinct steps:

- **Think:** Students think independently about the question that has been posed, forming ideas of their own;
- **Pair:** Students are grouped in pairs to discuss their thoughts. This step allows students to articulate their ideas and to consider those of others;
- **Share:** Student pairs share their ideas with a larger group, such as the whole class.

First used by J Donald Phillips at Michigan State University.

- Divided large classes into six-member clusters asking them to discuss a certain problem for six minutes. (The “Phillips 66” technique)
- Each group nominates a leader and a note-taker.
- Students are less inhibited about sharing information in small groups, and are also more likely to speak out in large group discussions.



Buzz groups



Focus Group - Testimonials

‘The points of strength of the project are:

- the extramural emphasis on how topics related to nature are taught;
- the international information visible on interesting projects in other countries;
- work being done on teaching and learning in our own school;
- the fact that it forces our teaching team to reflect and adapt how we convey the importance of nature to our students;
- this emphasizes the links between biology and nature.’



Enda Carr



Focus Group - Testimonials

‘Fantastic to see what others are doing in this project.’

Our students have enjoyed participating in this project and have been delighted to get the opportunity to explore the local habitats and nature hotspots’

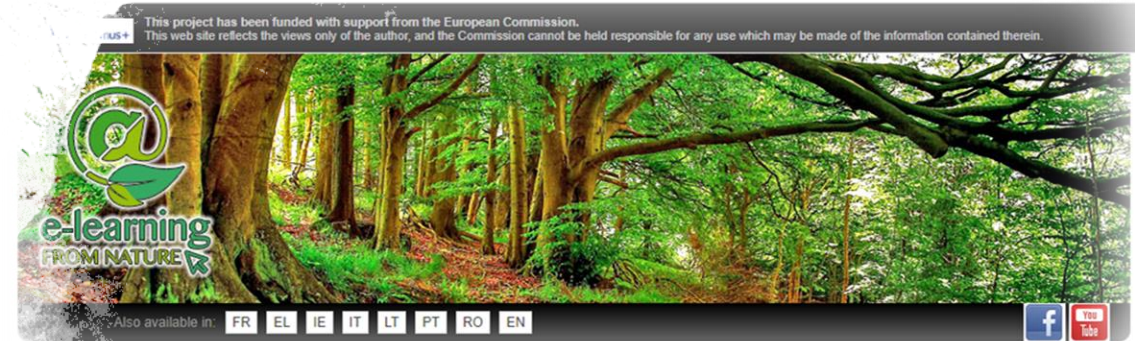
Maria Sheehan

<https://youtu.be/GPuzx2lud3M?t=48>

Commendations

- The project received an overall score of 98% from the evaluator for the Italian National Agency.
- Legacy effect on the partnership that the project outputs will continue to be used in lessons in the participating countries.

<https://enature.pixel-online.org/>





Acknowledgements



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