The e-me Digital Educational Platform [European Edition]

e-me4all.eu

The Photodentro PAFSE European Learning Resource Repository for STEM digital learning resources

photodentro.pafse.eu

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EdReNE: Nineteenth Strategic Seminar (9-10 November 2022 - Dublin, Ireland)
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101006468.
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**About PAFSE**

**Partnerships of Science Education (PAFSE)** is a science education project that addresses challenges of public health. It has been approved under **Horizon 2020** call: Science with and for Society (H2020-SwafS-2018-2020), in the topic **Open schooling and collaboration on science education**. The start date of the project was **1 September 2021**, and the end date will be **31 August 2024**. The project is coordinated by **Universidade NOVA de Lisboa – National School of Public Health** - (Portugal, Lisbon), and the consortium consists of the following institutions in four countries:

- **Portugal**
  - Universidade NOVA de Lisboa (PAFSE coordinator)
  - Universidade do Minho
  - Instituto Superior de Engenharia de Lisboa
  - Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência Prevenção Rodoviária Portuguesa

- **Greece**
  - Computer Technology Institute and Press “Diophantus”
  - University of Ioannina

- **Cyprus**
  - University of Cyprus

- **Poland**
  - Adam Mickiewicz University
Objectives

Establish partnerships among schools, universities, education providers, enterprises, civil society organizations etc.

Engage them in efforts to enrich Science, Technology, Engineering, Mathematics education so as to include Public Health Issues.

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 101006468.
Development of **Educational Scenarios**, covering a wide range of topics for Public Health education project-based learning method

Development of **Open Educational Resources** for Science, Technology, Engineering, Mathematics education, with a focus on Public Health Issues.

**Pilot implementation** in schools in 4 countries, involving ~2,500 pupils

Each scenario leads to an **open school event**

**Science education clusters** in the participating countries, to promote innovative ways of STEM learning for public health issues

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 101006468.
A virtual collaboration environment to support PAFSE pilots in schools as well as all PAFSE partnerships in participating countries.
Photodentro PAFSE
A European Educational Resource Repository for STEM digital learning resources

Search for learning objects or educational scenarios

Browse by choosing one of the following options:
Collections | Subject Areas | Learning Resource Type | Filters

Photodentro PAFSE
A European Educational Resource Repository for STEM digital learning resources

for Public Health Education

Photodentro PAFSE is a European Educational Resource Repository for hosting, organizing, systematically classifying, documenting, and disseminating STEM digital learning resources.

It was developed in the context of the PAFSE (Partnerships for Science Education) European Project, initially to host all learning resources for Health Education that will be developed or identified/customized in the context of the project. After the end of the project, the repository will serve as a European Repository of K12 open educational resources for Public Health Education.

http://photodentro.pafse.eu/

A multilingual European Educational Resource Repository, which was developed to

- host
- organize
- systematically classify
- document
- publish / openly share

STEM digital learning resources & Educational Scenarios developed or identified and customized for the PAFSE project.

After the end of the project, the repository will serve as a European Repository of K12 open educational resources for Public Health Education.

Elina Megalou @EdReNe / Dublin, 09-11-2022
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[I] The e-me Digital Educational Platform
[European Edition]

a social, collaborative, cloud-based personal learning environment for pupils and teachers
e-me editions (installations)

- **e-me.edu.gr**
  - e-me official Greek edition
  - (for students and teachers of Greek Schools)
  - 650,000 users
    - (~130,000 teachers, ~520,000 pupils)

- **4all.e-me.edu.gr**
  - e-me for all edition
  - 35,000 users
    - (~24,000 teachers and 11,000 students)

- **e-me4all.eu**
  - e-me Digital Educational Platform (European edition)
  - support collaborations at European level
    - 1- PAFSE (H2020)
    - 2- iLearning-eCreativity-eDiversity (ERASMUS+)
origins & context

design & pedagogical principles

current functionality
(e-me workspace & key e-me apps)
e-me origins & context

initiated in Greece

e-me design: started in 2014

context & funding: Greek national programme “Digital School”
designed and developed: by CTI (internally)

dschool.edu.gr

Goal: a safe, pedagogically modern, user friendly, and technologically advanced platform, to serve as the main digital working environment for all 1.5 M students and 150,000 teachers in Greece
market research on educational and social platforms

open call for ideas from students and teachers

focus groups with all key stakeholders

students
teachers
parents
policy makers
e-learning experts
pedagogists
technical experts
e-me design & pedagogical principles (i)

**user-centered**
- A platform which focuses on **people** (not only on classroom activities)
- Learning occurs anytime and everywhere within formal, non-formal, or informal settings
- A personal workspace for students and teachers to support all their activities

**students first**
- Familiar, modern, and intuitive user interface was important

**democratic**
- Equal participation of students and teachers
- Active and responsible role of students in all opportunities offered by the platform

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**e-me design & pedagogical principles (ii)**

**social platform & soft skills**

- develop 21st century skills
  - cooperation, communication, leadership, critical thinking, flexibility, adaptability etc.

**smooth transition to the ‘digital world’**

- **Everyday activities**
  1. communicate
  2. collaborate (work in groups)
  3. collect, share, and use educational resources
  4. assign tasks
  5. display / present their work

- what a platform should first support

**sustainable model for growth**

- open container for apps
  - apps by the educational community or the market to extend its functionality
e-me is a social, cloud-based digital educational platform.

It provides a safe working space for students and teachers, to **connect, communicate, collaborate, and publish** their work.

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**e-me v1.0**
2015

**e-me v2.0**
01/2020

**e-me v3.0**
7/2022
e-me [European] landing / login page

- Language selection
- Training material
- Create account
- Login
- modern and intuitive user interface
- “container” for apps, allowing the integration of third party apps
**e-me is a social platform**

- **Profile** (digital identity)
  each member has a public profile

- **Contacts**
  each member on e-me can have his/her own contacts (friends) by sending or accepting friend requests

- **Communication**
  contacts can directly communicate via chat, voice calls, and 1-1 video-calls
e-me is a collaborative platform

**Hives**: a key structural concept in e-me

- smaller, self-contained, **social, collaboration spaces**
- A hive represents a **group of people**
- It provides a space for their **communication, collaboration, and file sharing**.

Examples
- a school class
- a group of students working in a school project or an extracurricular activity
- teachers in a professional development program
- students from different schools, places, or countries, cooperating in a project
- ...
both students and teachers can create hives and invite members to participate

Hive’s leader
students as Hive leaders

Hives: private or public

Public Hive
- wall public or private
- appears in search results
- preinstalled public blog
- supports followers

Private Hive
- wall private only
- doesn’t appear in search results
- installable public blog

public hives: open educational communities of practice
over 170,000 hives have been created, representing either formal school classes or informal collaboration spaces.

30,000 hives by pupils (need for cooperation and communication with peers during quarantine time)

e-me public hives

over 25,000 public hives by teachers or pupils, to share good practices, guide each other, and exchange learning resources.
A hive has
1. **members** (after invitation and acceptance)
2. a **shared file space** (for all its members)
3. **communication channel** (Wall)
4. **collaborative apps**
Hive’s members

Hive’s leader invite members to participate in the hive (no need to be in their contacts).

Like in social platforms, invited members have to accept the invitation in order to participate.

Hive’s shared folder

Each hive has by default a shared file folder for all its members.
**Hive’s Wall**

main communication channel for all hive members

Open to all members to add posts & comments, share ideas, assign tasks & provide feedback, upload interactive learning material etc.

**Hive’s collaborative apps**

**hive’s collaborative blog**
all members can write and post articles

**Polls app**
contacting live polls

**Class Plan**
visualizes the classroom layout arrangement of desks and students
e-me apps extending the functionality of e-me

**e-me files**
Cloud storage and file sharing for students and teachers

**e-me content**
Easy development of interactive educational resources

**e-me assignments**
Create and assign tasks to students

**e-me blogs**
Create personal and collaborative blogs

**e-portfolios**
Create e-portfolios to organize and disseminate students' and teachers' achievements

**e-me bookmarks**
Create personal collection of bookmarks

**e-me Notes**
Create personal notebook

**Calendar**
Create and share your calendar(s)
A powerful and easy to use tool for teachers and students to create interactive learning resources.

It supports 44 types of resources: interactive videos, quizzes, memory games and multiple-choice questions etc.
During pandemic (March-May 2020), in official, Greek e-me teachers developed in two months over **250,000 interactive learning resources** using the ‘e-me content’ app (~30,000 per week).

**e-me content: Numbers from the official e-me edition (GR)**

Shared in e-me content collection @Photodontro UGC: -580
tool for creating assignments, assigning tasks to pupils and giving feedback

- create assignments
- manage and assign them to pupils, either individually, or to all members of a hive,
- monitor their progress,
- provide feedback etc.

assignments can include images, video, e-me content objects, interactive multimedia resources, file attachments, etc.
Cloud storage for personal files

Each e-me member has a personal storage of 2GB on the cloud to **upload**, **organize**, **store** and **share** their files.

Based on NextCloud open source tool
e-me blogs (publishing, creation and co-creation)

tool for publishing, displaying, and communicating work and achievements outside e-me

each e-me member has a personal blog, pre-installed and available in their workspace.

e-me blogs app provides you with:

**Personal Blog.** A blog for each e-me user.

**Hive Blog.** A blog for each hive with the participation of every member and with collaboration abilities.
e-me portfolio

(a personal electronic portfolio)

Students: collect, select, document, and maintain year-by-year achievements or representative work that best support their self-presentation

e-portfolio’s pedagogical use: reflection on the teaching or learning process
more e-me apps

e-me Notes
personal notebook to create, organize and share notes

e-me Bookmarks
collecting bookmarks from favorite websites and storing them in e-me
Let's start with e-me: Step by step guide for teachers

- You can access the platform through a web browser using any device (PC, tablet, mobile phone) connected to the internet.
- In the address bar (URL) type e-me平台/ or enter the log-in page of e-me.
- Choose "CREATE ACCOUNT".
- In the new tab:
  - Insert the username you would like to have in e-me, and set a password.
  - Insert a valid e-mail address, your name and your surname.
  - Choose "Teacher" in the status list.
  - Get informed about the terms and conditions of the platform, and declare it by choosing the relevant box.
- Choose "CREATE ACCOUNT".
- Activate your account as follows: Check the email account you used when registering in e-me. Open the activation email you received from e-me and click on the link to activate your e-me account.

✔ Greek
✔ English
✔ Portuguese
✔ Polish

✔ Greek
✔ English

✔ English
✔ Polish
Photodentro PAFSE
European Educational Repository
for STEM digital learning resources

http://photodentro.pafse.eu/
“Photodontro”
GREEK NATIONAL DIGITAL REPOSITORIES OF OPEN EDUCATIONAL RESOURCES

Seven (7) digital OER Repositories for Primary and Secondary Education

Curated / validated content

- Learning objects
- Educational video
- Educational software

Teacher-generated content

- User-Generated Learning Objects
- Learning scenarios and Templates
- Open Educational Practices
- Students’ creations
Methodology: Photodontro SaaS (Software as a Service) model

1. expression of interest / request for a new repository
2. requirements analysis
3. selection of the most appropriate existing Photodontro Repository
   - Creation and installation of a functional instance
4. specifications for the repository customization
5. technical implementation / customization of the repository
6. training
7. repository operation & technical support

The (upgraded) "Photodontro LOR" Greek National Learning Object Repository was used as a basis.
Developing the Photodentro PAFSE Repository

✓ Customization of the IEEE-LOM-based Application Profile

Photodentro IEEE-LOM GR AP -> Photodentro PAFSE IEEE-LOM GR AP

✓ Translation in English, Portuguese, and Polish of
  • Elements
  • Controlled vocabularies
  • Thematic taxonomies
  • Guidelines for metadata authoring

✓ A new Taxonomy for Public Health Education was created

Translations
  • Portuguese (Universidade NOVA de Lisboa)
  • Polish (Adam Mickiewicz University)
Developing the Photodentro PAFSE Repository

- **Customization** of the selected “Photodentro” Repository back-end environment
- **Configuration of workflows, user roles, and processes**

- **Design and development** of Photodentro PAFSE Repository front-end environment

For searching, browsing & viewing educational resources

For uploading, documenting & publishing educational resources
Photodentro PAFSE repository hosts **STEM digital educational resources** addressing **health literacy and education**. In particular, it hosts **learning objects** and **educational scenarios** for **Public Health Education**.

**Learning Objects**
- Small, self-contained and reusable units of learning,
- Semantically and technically autonomous
- Open Licenses (CC BY NC SA)

**Educational Scenarios**
Documents describing a learning framework with specific objectives, expected learning outcomes, pedagogical principles, and approaches. Educational Scenarios utilize specific educational tools and they are implemented through a series of educational activities, where students and teachers have well-defined roles.
Learning Resources are organized into “Collections”
The metadata page contains all the information that describes the educational resource.

EXAMPLE: TEMPORAL AND SPATIAL EVOLUTION OF COMMUNICABLE DISEASES
Click & play or download a resource

Click on its thumbnail to view or “play” a resource on the browser (if it is click-and-play), Or download and open it.

EXAMPLE:
TEMPORAL AND SPATIAL EVOLUTION OF COMMUNICABLE DISEASES

Elina Megalou @EdReNe / Dublin, 09-11-2022
TEMPORAL AND SPATIAL EVOLUTION OF COMMUNICABLE DISEASES

TITLE
Temporal and spatial evolution of communicable diseases

DESCRIPTION
The global map depicts the temporal evolution of nine chosen communicable disease. The color intensity indicates the cases per million. Students can use the timeline to navigate through the evolution of each disease (e.g. transmission to new countries, epidemic outbreaks, diseases eradication) and receive supplementary information about it. By selecting a country students are provided with supplementary epidemiological information for the country.
Searching or browsing resources

Photodentro PAFSE
A European Educational Resource Repository for STEM digital learning resources

Search for learning objects or educational scenarios

Browse by choosing one of the following options:

- Collections
- Subject Areas
- Learning Resource Type
- Filters

It supports:

- free text search, using a **keyword**
- browsing through collections of resources
- browsing resources by subject
- browsing resources by type
- finding resources using multiple filters
List of all resources & Search results page

Search without keyword, to list all resources of the repository

- Results per page
- Sort by Title, Issue date, Relevance
- Ascending / Descending

Elina Megalou @EdReNe / Dublin, 09-11-2022
Learning Resources are classified using a three-level, domain-specific hierarchy of terms for Science, Technology, Engineering and Mathematics targeting K-12 education (Photodentro thematic taxonomies)
CONCEPT MAPS ABOUT VACCINES

TITLE
Concept maps about vaccines

DESCRIPTION
Our topic is vaccines, and more particularly the various types of them. Match each box from the right column with the correct empty boxes, in order to have the concept map completed correctly. The options available outnumber the empty boxes, so some of them will be left over.

http://photodentro.pafse.eu/v/item/pafse/8586/157
Subject areas > Topics > Concepts

EXAMPLE: MATHEMATICS:
SIR model of an epidemic
SIR MODEL OF AN AIRBORNE DISEASE AND NON-PHARMACEUTICAL INTERVENTIONS

GENERAL INFORMATION

TITLE
SIR model of an airborne disease and non-pharmaceutical interventions

DESCRIPTION
SIR (Susceptible, Infected, Recovered) model of an airborne disease epidemic accompanied with a dynamic graph visualization of the city and the disease spreading in it. The modification of several variables is possible, which represent features of the disease or precautionary measures of non-pharmaceutical interventions. The effect of the variable handling on the progress and the outcome of the epidemic is also possible through a synchronous SIR graph.

REFERENCE URL
http://photodentro.pafse.eu/handle/6356/65

RESOURCE URL
http://photodentro.pafse.eu/e/item/pafse/1555/15

LEARNER CHARACTERISTICS

EDUCATIONAL LEVEL
Lower secondary, Higher secondary, vocational education

TYPICAL AGE RANGE
From 12 To 25

LANGUAGE LEVEL
All proficiency levels

FUNDING INFORMATION

LEARNING OBJECT
program / project: PAFSE project

METADATA
program / project: PAFSE project

TECHNICAL INFORMATION

FORMAT
application/pdf (11.35 MB)

CLOCK AND PLAY
Interactive

OPERATING SYSTEM
Windows 7, Windows 8, Windows 10, Linux, Apple macOS

BROWSER
Mozilla Firefox, Safari, Google Chrome

ADDITIONAL INFORMATION

LANGUAGE
Greek, English

DESCRIPTION
The scope of the learning object is the study of the effect of several disease factors and the interventions of non-pharmaceutical interventions in the process of an airborne disease.
SIR MODEL OF AN AIRBORNE DISEASE AND NON-PHARMACEUTICAL INTERVENTIONS

TITLE
SIR model of an airborne disease and non-pharmaceutical interventions

DESCRIPTION
SIR (Susceptible, Infectious, or Recovered) model of an airborne disease epidemic accompanied with a dynamic graphic visualization of the city and the citizens living in it. The modification of several variables is possible, which represent features of the disease or precautionary measures of non-pharmaceutical interventions. The effect of the variable handling on the progress and the outcome of the epidemic is also possible through a synchronous SIR graph.

http://photodentro.pafse.eu/v/item/pafse/8586/35
When searching by “Learning Resource Type”, a graphic representation is displayed, showing the learning resource types that are supported by Photodentro PAFSE.
VACCINATIONS - HOW DOES THE IMMUNE SYSTEM LEARN

Title
Vaccinations - how does the immune system learn?

2. Main partner responsible
Adam Mickiewicz University, Poznań, Poland

3. Overview
Vaccinations are considered the most effective weapon that humanity has created to fight infectious diseases. However, researchers note that immunization has become a victim of its own success. Thanks to population vaccinations, we are unfamiliar with high mortality due to infectious diseases in childhood and severe complications following re-exposure to various diseases.

4. Estimated duration
Six teaching hours, organized in continuous two-hour periods if possible. Proposed lessons should be conducted during biology lessons.

5. Scientific content and its relevance to public health education

http://photodentro.pafse.eu/handle/8586/154
Photodentro PAFSE Educational Scenarios Topics

- Looking after myself and others – Healthy Eating
- Looking out for my community: Vaccines development and the science that responds to hesitancy
- Looking after myself and others – Tobacco
- History of pandemics: what do we know about powerful viruses and their impact?
- Workings and malfunctions of human Immunological memory
- The mathematical representation of an epidemic: the case of SIR (Susceptible, Infectious, or Recovered) modelling
- Social determinants of health during an epidemic/pandemic outbreak
- Cognitive and social determinants of health during an epidemic/pandemic outbreak for students with Intellectual Disabilities
- Function of vaccines, vaccination hesitancy and misinformation
- Sustainable Mobility
- 3D modelling to address pandemic challenges
- 3D printing to address pandemic challenges
- Use 3D animation to address pandemic challenges
<table>
<thead>
<tr>
<th>Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road traffic crashes – a public health issue</td>
</tr>
<tr>
<td>Road traffic crash risk factors</td>
</tr>
<tr>
<td>Low-code development environments – level 1 (basic)</td>
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<tr>
<td>Low-code development environments – level 2 (intermediate)</td>
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<tr>
<td>Low-code development environments – level 3 (high)</td>
</tr>
<tr>
<td>Planet of viruses</td>
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<tr>
<td>Different shades of bacteria</td>
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<tr>
<td>Droplets &amp; the physics of viruses transmission</td>
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<tr>
<td>Energy sources, and public health impact</td>
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<tr>
<td>Noise pollution and quality of life</td>
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<tr>
<td>The role of environment and animal health in zoonotic diseases and pandemics</td>
</tr>
<tr>
<td>Non-communicable diseases</td>
</tr>
<tr>
<td>Sustainable Development Goals</td>
</tr>
<tr>
<td>Artificial Intelligence responses when clinical symptoms appear</td>
</tr>
</tbody>
</table>
Photodentro PAFSE repository provides a form-based environment for authorized users (back-end environment) to upload, classify, document, describe, and publish educational resources.

The process includes the following steps:
THANK YOU!