Project Number: 101006468

Project Acronym: PAFSE

Project title: Partnerships for Science Education

D2.1 WEB-BASED INTERACTIVE VIRTUAL EDUCATIONAL ENVIRONMENT FOR NETWORKING, COLLABORATION, AND COMMUNICATION

Technical information

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List of abbreviations

PAFSE   Partnerships for Science Education

MoE   Ministry of Education

GRNET   GRNET S.A. – Greek National Infrastructures for Research and Technology

1. Introduction

The Partnerships for Science Education (PAFSE) project focuses on establishing partnerships between schools, universities, research centres, laboratories, enterprises, associations, and civil society representatives, with the goal of enriching education in STEM disciplines and public health science. In this context, a web-based interactive virtual environment was envisaged to support collaboration, communication, networking of students and teachers, professional stakeholders and parents, as well as sharing of educational scenarios.

Towards this end, partner CTI has undertaken the task to customize and extend its existing Greek digital learning collaboration and communication environment "**e-me**" to be used as the PAFSE virtual learning environment for all PAFSE users, including schools, teachers, pupils, parents, and local organizations, supporting the activities and interactions within and across Local Educational Partnerships in a multilingual context covering all the languages of the consortium. As a result, the multilingual **e-me, European edition** was produced and provided.

The **e-me, European edition** is available at **http://e-me4all.eu.**

e-me is a personal learning environment for pupils and teachers, which supports:

- creation of private and public collaboration spaces (hives) by teachers and pupils,
- communication and social networking among students and teachers,
- organization, storage, and exchange of files on the cloud,
- easy creation of digital interactive educational objects,
- assigning and monitoring of tasks,
- creation of an e-portfolio for keeping selected personal achievements,
- display of work via collaborative and personal blogs,
- use of open educational resources from digital repositories,
- while it further provides digital "tools" to support teaching and learning.

Figure 1. e-me Digital Educational Platform (European edition) - landing page

e-me was initiated in Greece. It was designed and developed by CTI, the technical body of the Greek MoE, and it is now one of the two official platforms provided by the MoE to all schools, teachers, and students in Greece as a national learning platform. In Greece, e-me is available in two editions: the official e-me (https://e-me.edu.gr), which is a closed system provided only to teachers and students with the use of their school accounts, and the "e-me for all" edition (https://4all.e-me.edu.gr), which is open and free to everyone via registration.

The **e-me, European edition** was based on the "e-me for all" edition of e-me.

The platform is open and free to anyone interested in Europe, including schools, teachers, students, parents, academics, institutions, etc. It currently supports four languages (English, Greek, Portuguese, and Polish).

2. Summary

D2.1 deliverable is part of Task 2.1.1 "Configuration of a web-based interactive digital educational environment for interactive communication and collaborative learning and provision of user support". It concerns:

(a) the technical adaptation of the e-me Digital Educational Platform v.3.0 (its open, e-me 4all version) in order to meet the needs of the PAFSE project and to support all relevant project activities;

b) the development of a multilingual version of e-me, supporting all partner languages;

c) the installation and hosting of the adapted, multilingual version of e-me on a cloud-computing infrastructure; and

d) the adaptation and translation of selected e-me training material.

The D2.1 deliverable includes:

[1] The ONLINE SYSTEM: e-me v3.0, European edition

Available at https://e-me4all.eu

[2] A short User Guide: "Let's start with e-me: Step by step guide for teachers"

Step-by-step instructions on how to use the applications and functionalities of e-me.

Commented [JV1]: Maybe regarding the hosting of the platform, indicate the available space? (Each member have 2GB, regardless of teacher or student. Is there a maximum capacity for cloud storage? Is there a maximum number of users that can register?)

3. Attached files

The following files are attached to the D2.1 deliverable:

1. User Guide: Let's start with e-me: Step by step guide for teachers

(a) Leaflet format (pdf)

Filename: e-me_europeanPAFSE_LetsStart_StepByStep_Teachers_leaflet-v0.9-29_04_22_en.pdf

(b) Word version (to be used for translations in other partners' languages)

Filename: e-me_europeanPAFSE_LetsStart_StepByStep_Teachers_leaflet-v0.9-29_04_22_en.doc

4. Document History and Co-authorship

This document is the first version of the "Deliverable 2.1 Web-based interactive virtual educational environment for networking, collaboration and communication" to be submitted in month 9 as a PAFSE deliverable.

Version	Date	Released by	Notes
1.0	29.04.2022	CTI (Elina Megalou, Dimitris Giakoumakis, Christos Chatzis, Io Papadimitriou)	First version

5. Deployment tasks for European e-me

5.1. Technical adaptation

Technical changes in e-me's subsystems were applied in order to support the new European edition. The platform's home page was redesigned, including modifications in colors, logos, and texts. New code was added to core functions, modules, and plugins in order for the platform to become fully multilingual. Applications and functionalities of e-me were adapted to meet the demands of a European audience.

5.5.1. Code refactoring for edition check

Additions or modifications to the e-me code were made to enable a checking mechanism so that more languages and special functionalities become available when the European edition is detected. In particular, code was added or modified in the following systems of e-me:

- ✓ Landing page
- ✓ Authentication system
- ✓ WordPress based applications
- ✓ NextCloud based applications
- ✓ H5P based application

5.5.2. Modifications on the platform graphical user interface (GUI)

The graphical user interface (GUI) of the e-me Digital Educational Platform was redesigned and configured. A new color scheme was introduced.

Moreover, the e-me (European edition) seal was created.

Figure 2: e-me (European edition) – Seal

New buttons for the language selection were also added in all platform pages.
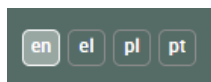
Figure 3: Language selection buttons

5.5.3 Modifications in the e-me database

The default collections of the e-me mongoDB database were modified to form the e-me store (application repository) of the new European edition. In addition, all applications (apps) targeted only to Greek users as well as apps that could not support languages other than Greek were removed.
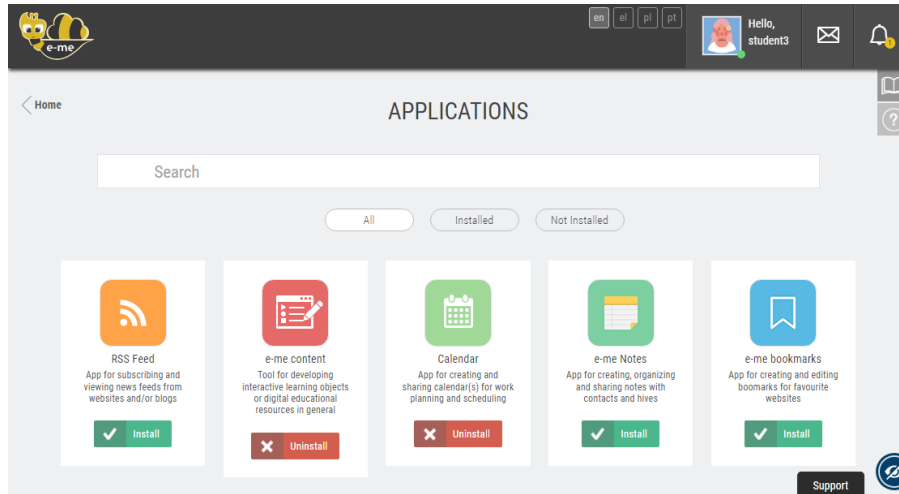
Figure 4: e-me store of the European edition of e-me

5.5.4. Adaptation of texts

The texts describing e-me were adapted to describe the new, European edition of e-me. Texts on the landing page and on the About page were also modified, and references to the PAFSE project were added.

e-me was initiated in Greece. It was designed and developed by "CTI DIOPHANTUS", the technical body of the Greek Ministry of Education and Religious Affairs (MoE). e-me is one of the two official platforms that is provided by the Greek Ministry of Education to all schools, teachers and pupils in Greece, as a national asynchronous learning platform.

In Greece, e-me is available in two installations (editions): the official e-me (e-me.edu.gr), which is a closed system provided only to teachers and pupils with the use of their school accounts, and "e-me for all" edition (4all.e-me.edu.gr), which is open and free to everyone via registration.

The current installation of e-me (**e-me4all.eu**) is the **European edition of "e-me for all"**.

European edition of "e-me" is open and free to anyone interested in Europe, schools, teachers, pupils, parents, academics, institutions, etc.

It was customized in the context of the **PAFSE** project (PArtnerships For Science Education) and it supports four languages (English, Greek, Portuguese and Polish).

The European edition of "e-me" expands use of Digital Educational Platform e-me in Europe.

Figure 5: Description of the European edition of e-me

5.2. Translation

5.2.1. Workload analysis

The first step towards translating e-me was to estimate the total number of words that needed to be translated. Texts concerned both the e-me platform itself and the accompanying educational material and manuals. Having this information, project partners decided to translate almost all of the e-me platform texts, although the large volume of translations and the limited resources they have for this task.

Item Title	Short Description	Filename / Location	Filetype	Number of words
1 e-me UI terms	User Interface terms and texts of main functionalities and applications of the e-me platform	e-me_translations_v1.1_24_12_2021_ip tab: e-me	.xlsx	7357
2 e-me API terms	Terms and texts of the platform's API, mostly warning messages	e-me_translations_v1.1_24_12_2021_ip tab: e-me API	.xlsx	2565
3 e-me AUTH terms	Terms and texts of the user authentication page-login page	e-me_translations_v1.1_24_12_2021_ip tab: auth	.xlsx	4810
4 e-me FAQs	Frequently Asked Questions	FAQ-e-me-05-01-2022v1.1	.docx	6823
5 apps terms	Titles and short description of e-me apps inside e-me Store app	e-me_translations_v1.1_24_12_2021_ip tab: apps	.xlsx	1141
6 step-by-step guide for teachers	Text with step by step instructions for teachers	2- T4E_D1_e-me_LetsStart_StepByStepLeaflet_v2.0	.docx	1875
7 short user guide	Short User Guide for the fuctionalities and applications of the e-me platform	5-T4E_D1_e-me_ShortUserGuide_v1.2_ip	.docx	10617
8 step-by-step guide for students	Text with step by step instructions for pupils	LetsStartWith_eme_StepByStep_Guidelines4Studentsv1.2-Jan22	.docx	1060
				36248

Figure 6: First estimate of translation work volume

5.2.2. Preparation of translation files

The platform's *locale* JSON-type files were converted to datasheets and HTML tags were simplified. A final datasheet containing all the text that needed to be translated was assembled and sent to the partners.

Figure 7: Collection of texts for translation

The translated datasheets were converted back to JSON-type files and the HTML tags were placed back, where needed. With the introduction of necessary code changes in e-me, the above files are used in order for all four languages to be displayed properly.

Figure 8: Translation of the e-me description texts in the landing and about page

5.2.3. Translation entry

An automated procedure was coded to enter the translated texts in Portuguese and Polish. In some applications and functionalities of e-me, translations were added manually.

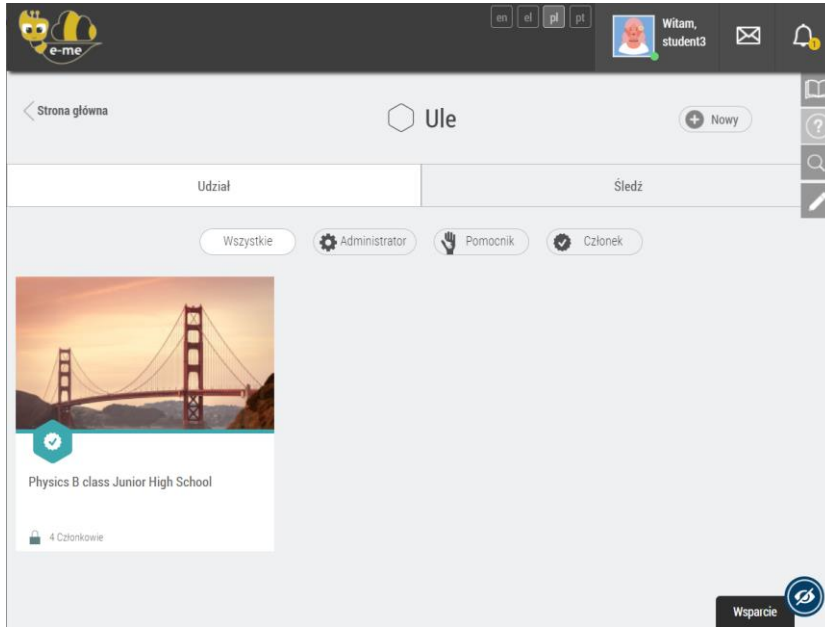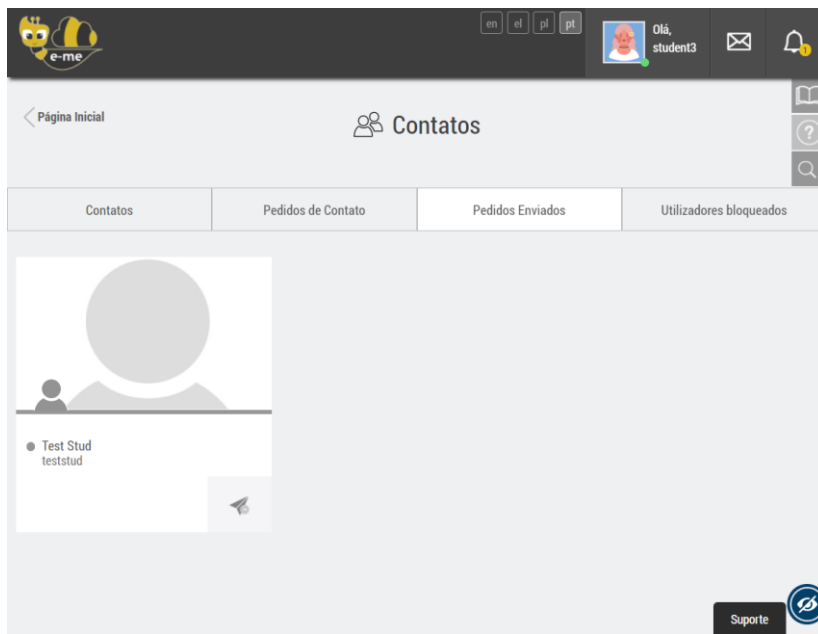**Figure 9:** e-me, European Edition in Polish

Figure 10: e-me, European Edition in Portuguese

Commented [JV2]: I suggest using an image with content of a real contact (similar to the Polish one), instead of the "Test Stud" and the empty picture.

5.3. Installation

For the European version of e-me, CTI purchased and registered the domain name **"e-me4all.eu"** from the Greek domain name provider pointer.gr (www.pointer.gr/en/).

As for its hosting, CTI had already an agreement for e-me with the GRNET S.A. – The Greek National Infrastructures for Research and Technology, who is one of the largest public sector technology companies in Greece, operating under the auspices of the Ministry of Digital Governance. GRNET provides networking, cloud computing, HPC, data management services and e-Infrastructures to academic and research institutions, to educational bodies at all levels, and to all agencies of the public sector.

All e-me platform's subsystems were installed in GRNET servers (code was deployed, configuration guidelines were written, and log files were created). The infrastructure of e-me (European edition) consists of 17 Virtual Machines, including load balancers, nodejs, PHP application servers, mongoDB cluster, mariaDB cluster, NFS server, Memory caching server, STUN for webrtc server.

Configuration of the infrastructure comprises the configuration of the following services: data logging, analytics, security monitoring, service availability, performance, backup, and others.

5.4. Launce of e-me, European edition

A first, fully functional version of the new e-me, European edition, supporting four languages (English, Greek, Polish and Portuguese) was launched and made available online on **February 28th, 2022** at the following URL https://e-me4all.eu/

Additional translations and improvements were made to the platform since then.

Today, e-me European edition has already 83 registered users (56 students and 27 teachers), and 13 hives.
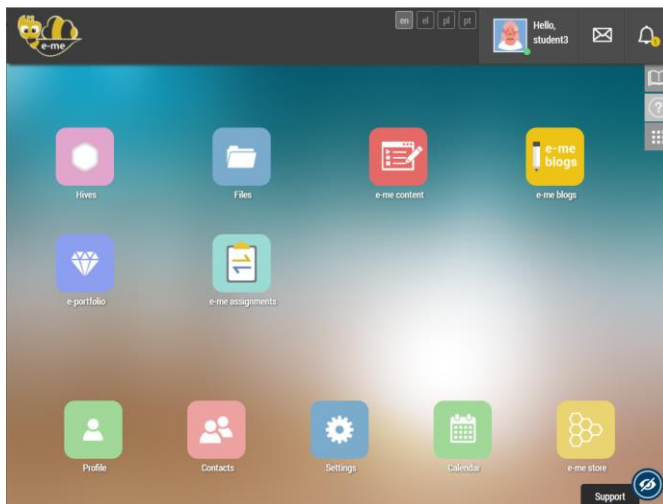

Figure 11: e-me, European Edition in English

5.5. Training material

e-me platform is supported by rich educational and training material, all open and freely available on the following URL https://e-me4all.eu/en/help/

Figure 12: e-me Training material

e-me training material include:

1. Two step-by-step guides:
    a. Let's start with e-me: Step by step guide for teachers
    b. Let's start with e-me: Step by step guide for pupils
2. e-me Familiarization Scenario in 12 steps
3. e-me Digital Education Platform (v3.0) Short User Guide
4. e-me Digital Education Platform (v3.0) Extended User Manual & Pedagogical Guide
5. 10 video-tutorials at the official YouTube channel of e-me
6. Hundrends video tutorials developed by the educational community of e-me, available at the https://dschool.edu.gr/emefromall/ web site.

However, almost all material is currently provided in Greek.

> **Commented [CS3]:** I noticed that you asked us to translate the step-by-step guides but not the other training materials. Will them be sent soon?

> **Commented [JV4]:** Provide an estimated date of when material will be available in other languages

In the context of the PAFSE project and for the European edition of e-me, the "**Let's start with e-me: Step by step guide for teachers**" user guide was translated in English, in order for the partners to translate it into Portuguese and Polish.

The user guide was also formatted as a 11-page leaflet.

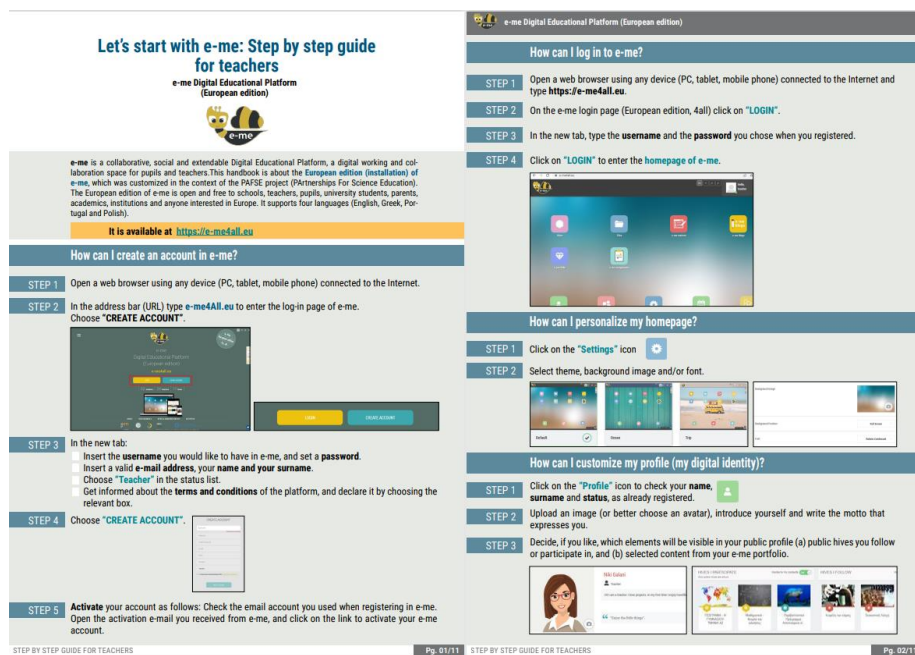**Commented [CS5]:** Add that is already translated to Portuguese.

Figure 13. Let's start with e-me: Step by step guide for teachers

The guide provides step-by-step guidelines and instructions to teachers on how to use the platform and its main applications and functionalities. In particular, it includes instructions on the following:

- ➢ Creating an account in e-me
- ➢ Logging in
- ➢ Personalizing the working space
- ➢ Customizing the profile
- ➢ Adding and managing contacts
- ➢ Communicating
- ➢ Creating and managing collaborative workspaces (hives)
- ➢ Creating digital educational content
- ➢ Creating and assigning assignments
- ➢ Creating and using an e-portfolio
- ➢ Uploading and organizing files
- ➢ Creating blogs for displaying classwork outside of e-me

Partnerships for Science Education