# Intelligent Collaborative Drama and Theatrical (ICDT) web repository tool

# Manual v2

December 2024

# Table of contents

# A. Development Life Cycle

The process of the Integrate ICDT tool development was divided into the following five stages, as shown in Figure 1:

- Planning / Analysis.
- Design
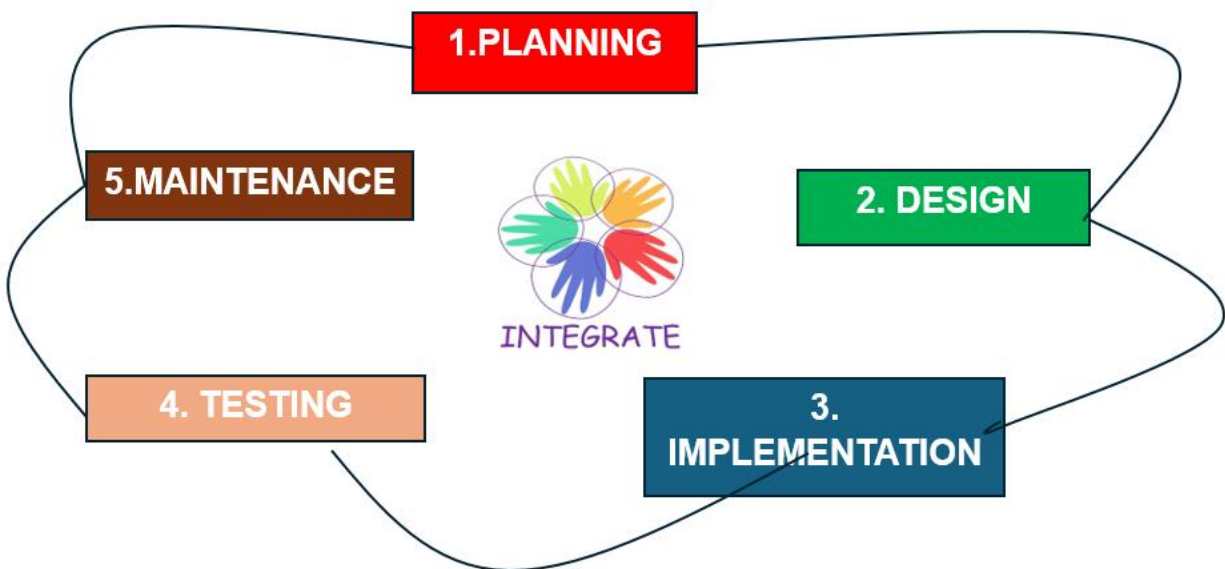- Implementation
- Testing
- Maintenance.



*Figure 1 Development Life Cycle*

# 1. Planning / Analysis

The Integrate ICDT tool is an **intelligent web repository of short videos** filmed in prisons which also includes several technological advances such as sentiment analysis, collaboration, gamification, recommendations and personalization tools.

After discussions (teleconferences) with the partners we asked them to **analyze their needs** to determine the requirements that the ICDT tool should meet. From the above, it became clear that the ICDT tool should be a **web-based** tool (Web application) where the partners can use it directly wherever they are, through a browser.

# 2. Hardware and Software Requirements

Based on the needs of the instructors, we concluded that for hosting we need to build a web server with powerful processor, plenty of RAM memory and a high-speed SSD speed for the optimal and "fast" operation of the ICDT tool as well as for the streaming capability of the videos. Also, a 2nd disk is needed as a backup, always having a clone of the main disk on the second one (using RAID 1 technology), to ensure the uninterrupted operation of the ICDT tool and the integrity of the data in case of disk failure. In addition, a mid-range GPU is required for video processing so that videos comply with privacy rules. Last but not least, a UPS is more than necessary for server's surge protection.

Based on the above, we arrived at the following server configuration:

- CPU: INTEL Core i9-11900, BX807081190
- RAM: 32GB, DDR4, 3200MHz
- SSD:  2x M.2 NV1 SNVS/2000G, 2TB, NVMe, PCIe
- GPU: MSI GeForce GTX 1650 4GB
- UPS: APC Back BX950M-GR Line Interact

A virtual machine with similar resources is also a viable alternative for hosting the ICDT tool. Regarding the **software**, we concluded that the server should have a **Linux operating system** (CentOS 7) and the software for web service will be **Apache Web Server** since the combination of the two above offers increased security to web applications. Because Linux and Apache are open-source, we also benefit from a strong community of resources and advocates. For ICDT tools' database we will use **MariaDB** or **MySQL** which is CentOS's default relational database. Integrate ICDT tool's web programming language is **PHP** so PHP will be installed in the server with all the necessary PHP modules.

On the server, it was decided to implement a **virtualization** architecture so that the web application and the web ICDT tool are hosted on a separate host, as shown in Figure 2.
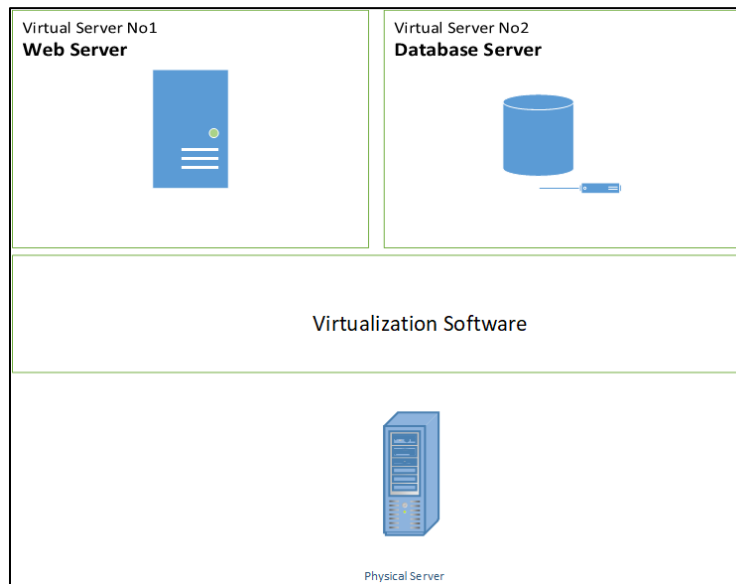


*Figure 2 Virtualization Architecture*

Due to the sensitive data that will be present on the ICDT tool, the **security of the server** and the ICDT tool, occupy a significant position. For this reason, the **SElinux** module will be installed and enabled on server's operation system, and several security access policies are applied to block unauthorized access to system resources.

In addition, Apache's module, **ModSecurity** will be installed and enabled and protects Integrate ICDT tool from external attacks. Finally, an **SSL** certificate will be issued, and SSL files will be stored on the server for safe and encrypt connection to the ICDT tool.

# 3. Implementation

Based on the design mentioned above, the implementation of the application will be divided into the following 3 modules/units, as presented in Figure 3:

- **Database** schema design and implementation
- **Backend** development
- **User Interface** Design and Implementation

The **backend** is a crucial piece of the ICDT tool that operates in the background. It is the whole logic of the Integrate ICDT tool. This piece of tool (backend) will be developed with **PHP** programming language. The backend is also separated by modules like, a PHP function to connect to the Database, a function for Posts, Images Galleries, e.t.c.

The **User Interface** of the Integrate ICDT tool, will be implemented with **HTML5** and **CSS**. Graphical pieces of the tool will be created with the open-source image editor **GIMP.**



*Figure 3 Implementation Modules*

# 4. Testing

The process of testing Integrate ICDT tool was separated into three major stages: Usability, Functionality and Security.

**Usability** testing will be carried out by the partners. The purpose is to determine if they can easily find all the tools offered by the tool. The **functionality** of the tool will be also tested by the partners, giving them a few days where they could upload test material and use its tools (forum, pages, gamification, etc.) and then send their comments to the tool administrators, so that fix errors, bugs and malfunction issues.

About the **security** of the tool, in addition to manual testing by administrators an open-source **web app scanner** (ZAP) will be also used to discover security risks and vulnerabilities of the tool and its data.

# 5. Maintenance

After the implementation and the successful testing, the tool will start to be used by Partners. From that moment the Maintenance process began. Is the process of **changing**, **modifying**, and **updating** Integrate ICDT tool to keep up with partner's needs. In addition, the Maintenance stage includes the **update** and **upgrade** of software and the operating system installation on the server.

Finaly, the development of a strategy in case of external attack or a disk failure in order to keep the uninterrupted operation of the tool and their data integrity, is part of this stage. For this purpose, **backup scripts** will be developed which will be executed periodically.

# B. Integrate ICDT tool – How to

The Integrate ICDT tool is an **Intelligent Repository** of **short videos** filmed in prisons and portraying different categories of emotions that a prisoner may have during his incarceration. The ICDT tool is a web tool and it is accessed through a web browser.

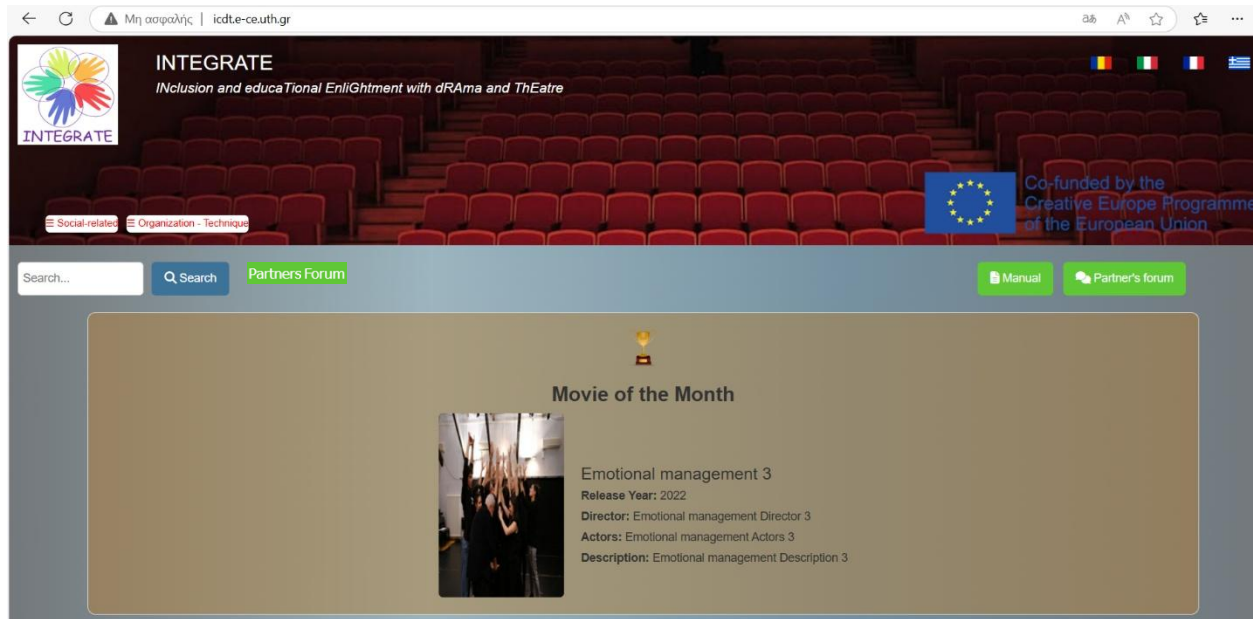The main page of the tool is shown in Figure 4.



*Figure 4 Integrate ICDT tool - Main Page*

There is a **horizontal menu** with all the available options, shown in Figure 5.



*Figure 5 Horizontal menu*

# 1. Video Selection

In the center of the page there is a section (shown in Figure 6) that displays the video that received the most positive reviews for each month (as an intangible reward and motivations for video creators, in terms of incorporating **Gamification** to the ICDT tool). The title of the video and other information such as the director, actors, release date, etc. are displayed.



*Figure 6 "Movie of the Month" Section*

Below is the section titled "Recommended movies" (Figure 7). Here the **Recommendation System** of the tool recommends some videos (based on videos' **access patterns** of users and **sentiment analysis** results). Each user is shown different (**personalized**) videos in this section. The selection of the recommended videos is based on the user's previous views as well as his votes on other videos (More on how to rate a video will be seen below).

With this functionality, the recommendation system turns the Integrate ICDT tool to an **Intelligent Repository** of short videos.
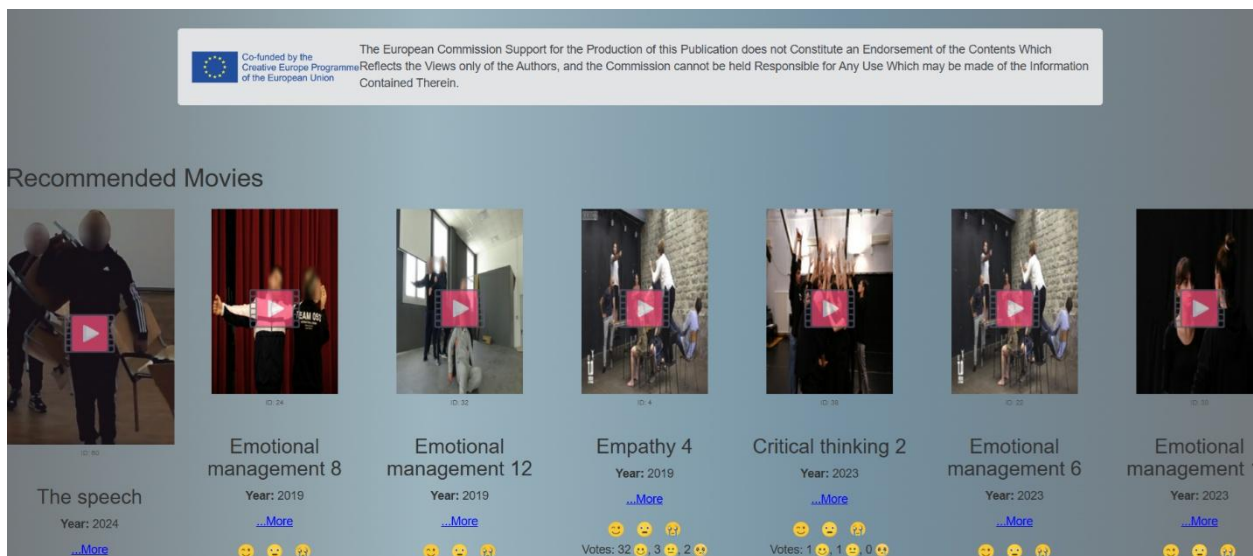


*Figure 7 Video Recommendation Section*

Directly below the "Recommendation section" the videos by category begin to be displayed (Figure 8). There is a **separate section for each category**, one below the other. For example, the image below shows the "Social and Communication skills" category section.
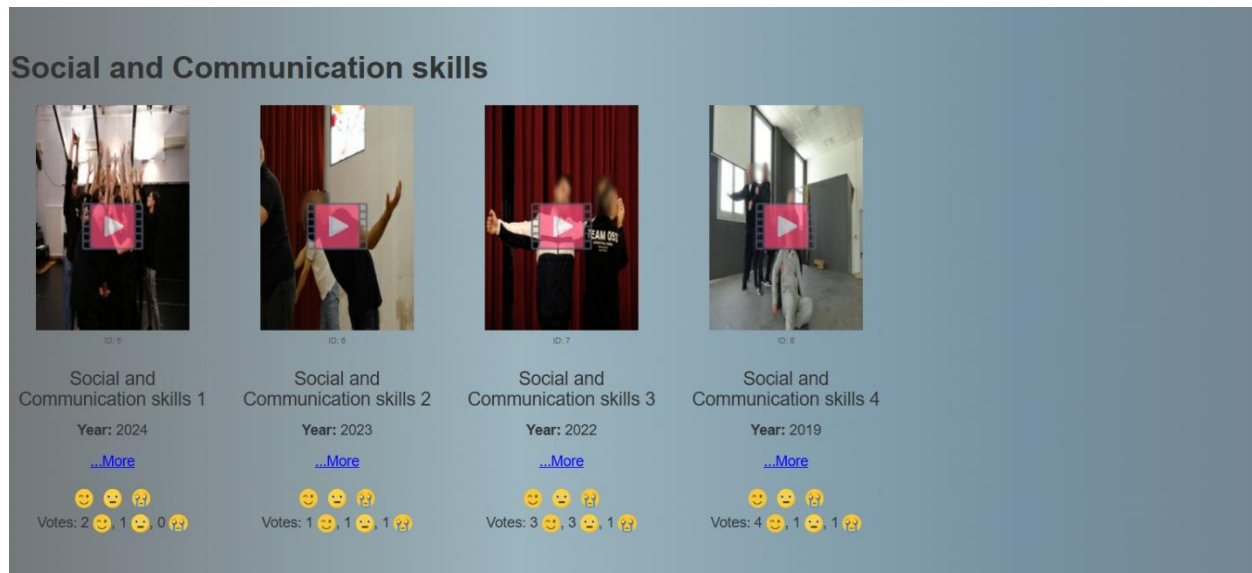


*Figure 8 Video sections by category*

From the horizontal menu, we can set the display of **videos by category** (Figure 9). There are 8 "social related" categories. If we click on the "Social-related" menu, a dropdown menu with 8 categories appears. If we select one of them, we are immediately directed to the part of the page where there is the section of the category of the videos we selected.

In the example below, we have chosen to display the videos belonging to the "Social and Communication Skills" category.
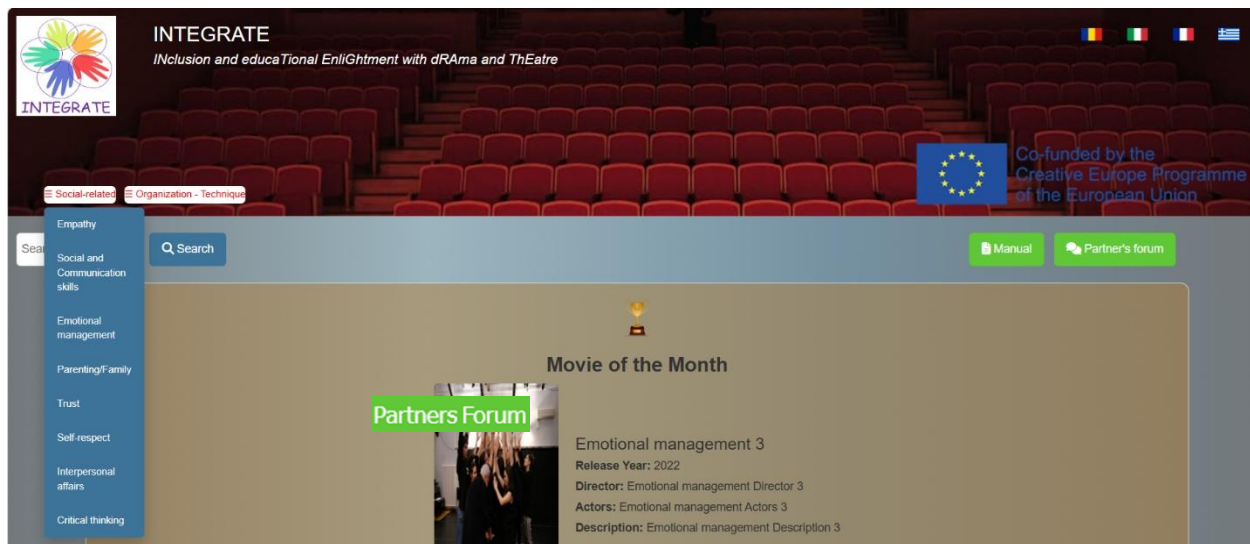
*Figure 9 Videos by Category*

In addition, we can display the **videos by Theatrical Team and technique** (Figure 10).

For example, we can only display the videos created by the theater group "Balamos Theatro". To do this, we must select Organization from the horizontal menu and then the theater group we want. In this case the "Balamos Theatro".
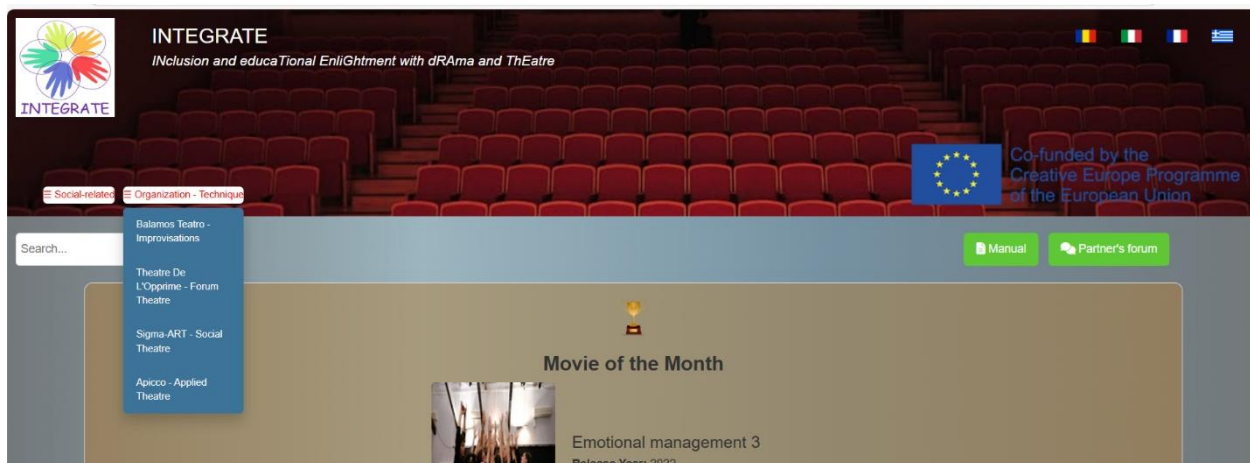


*Figure 10 Videos by Theatrical Team*

Finally, there is a **Search Bar** (Figure 11) where the user can type some keywords and the tool will display the videos related to those keywords.
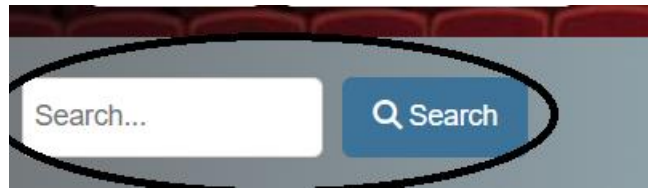
*Figure 11 Video Search Bar*

## 2. Video Options

Each video has 4 options available (shown in Figure 12):

1. Start playing the video by clicking the **Play button**.

2. If we want to show more information about the video, we can click the **More** button. Accordingly, we can hide the information again by clicking on the **Less** button.

3. Using the relevant emojis, the user can **rate a video**. The user's choice (sentiment) is taken into account by the algorithm of the **Recommendation System**, in order to recommend videos related to the user's preferences.

4. At the bottom of each video, the user **Sentiment rating results** are displayed.
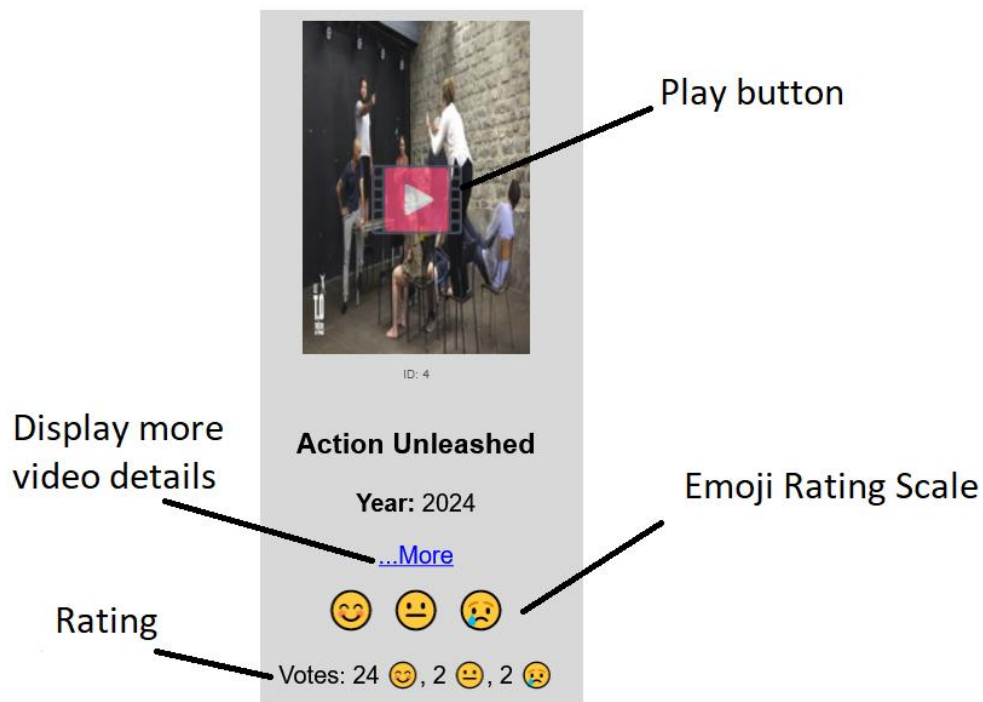


*Figure 12 Video Options*

# 3. Collaboration Tool – Forum

The tool also provides the means for better and more efficient **Collaboration** between partners. If we click on the partner's forum button (Figure 13), we navigate to a web forum tool.
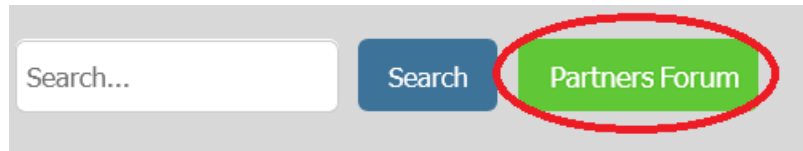


*Figure 13 Forum Partners Button*

Integrates' Forum is a tool for **asynchronous communication between partners** (Main Page depicted in Figure 14).

Access to the forum is allowed only to project partners. For this reason, accounts will be created, the details of which will be sent to all project participants.
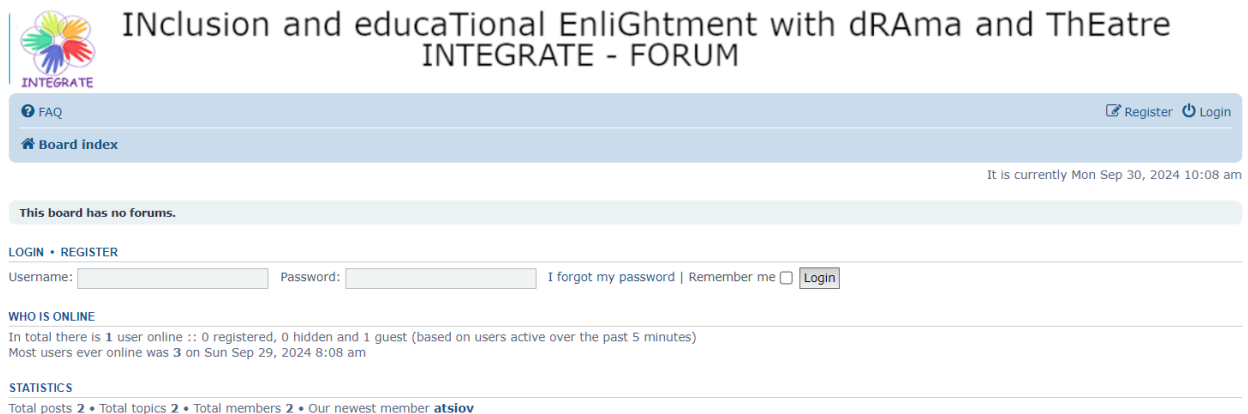


*Figure 14 Partner's Forum - Main Page*

A user can start a conversation by creation of a new topic (Figure 15). Other users can replay to this topic or create a new one.
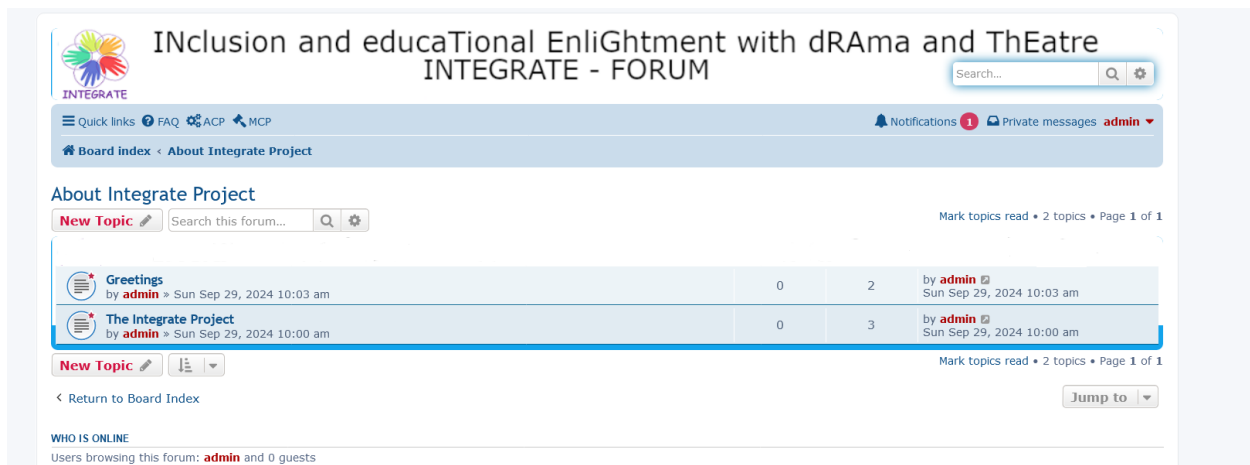
*Figure 15 Integrate Forum – Topics*

To create a new topic, a user should click on the **New topic** button. A **web editor** will then appear (Figure 16) where users can write and format their messages (Figure 17).
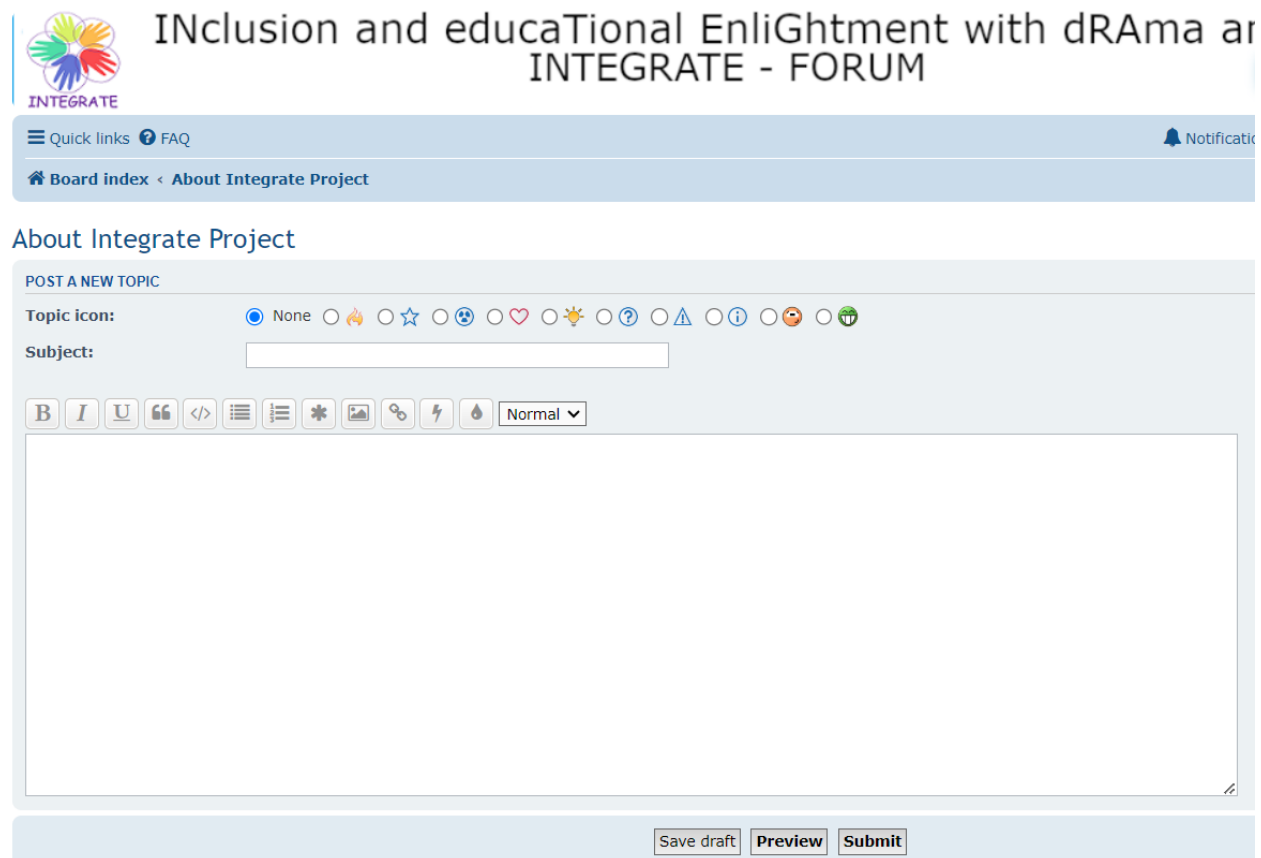


*Figure 16 A new topic creation*

# INclusion and educaTional EnliGhtment with dRAma and ThEatre
## INTEGRATE - FORUM

Search...

## The Integrate Project

**Post Reply** ↩    🔧  ▾    Search this topic…  🔍  ⚙

1 post • Page **1** of **1**

### The Integrate Project

📄 by **admin** » Sun Sep 29, 2024 10:00 am

A European citizen's identity is inextricably characterized by the rich cultural legacy and traditions of Europe. Every member state of the European Union has its own distinct personality, shaped by treasured items and traits that have been handed down from earlier generations. The pinnacle of "methexis," or communal sharing, is theatre, one of the broadest categories of performing arts. The audience participates, develops, and improvises the ritual action in a tradition that dates back to Greek theatre. People share a similar experience through knowledge, participation, and exploration. It is then through sharing that a deeper understanding may be established, toleration may be fostered, and finer shades of one's personality may be shown. Cultural heritage is a living testimony to a history that must be preserved bequeathed to the future; created by a social group and transferred and shared with another social group. However, incarcerated citizens are deprived of this favorable occasion: The limits placed on them prevent them from attending cultural events, let alone taking part actively in artistic activities, therefore prisoners are denied this favorable opportunity.

**admin**
Site Admin

**Posts:** 2
**Joined:** Sat Sep 28, 2024 7:20 am
**Contact:** 💬

*Figure 17 Integrate Forum - A Topic*