ARTutor & **Moodle**

moodlemoot GREECE 2017

ARTutor

Prof. Avgoustos Tsinakos,
Director of **Advanced Educational Technologies and Mobile Applications Lab**
Eastern Macedonia and Thrace Institute of Technology
E-mail: tsinakos@teiemt.gr

Athens, 1–2 December 201
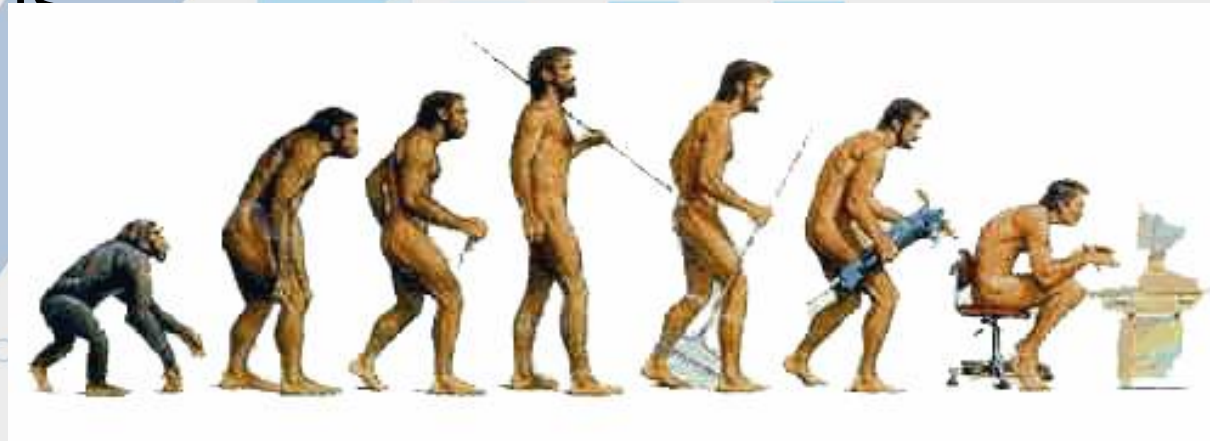
The Challenge ...

End of an ERA

We are the last generation

being more intelligent

than the existing technology

The Challenge ...

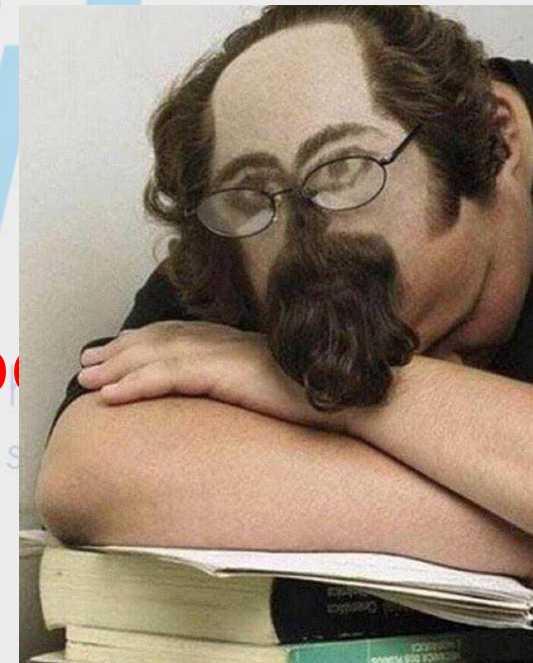We 've changed....

from Homo Sapiens

The Challenge

..to....Mobo Sapiens

The Challenge …

We've changed the way we learn…
becomes

thus, in some cases education

An alternative....

But couldn't be better?

How about combining **Moodle** with **AR**?

The ideas are ...

To **Augment** content available via Moodle

To increase user interaction with the platform
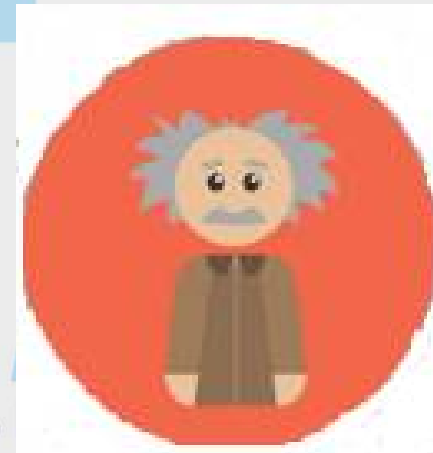
To immerse the learner into the content

We propose the use of...
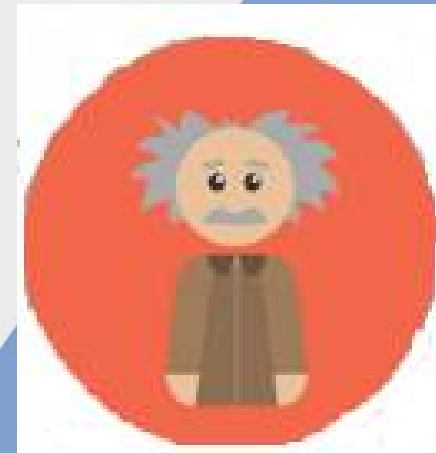
Augmented Reality Tutor (AR Tutor)

We propose the use of... AR Tutor

1) AR Tutor can be used for creating Augmented

enhanced content

2) Has the advantage of voice interaction

with the user

Advantages of ARTutor

- Easy to use - No special IT or programming skills are required

- Applies on **PDF** books, already distributed via **Moodle**

- ARTutor uses the same PDF to create the augmentations
  (while in other platforms only image files can be used as triggers)

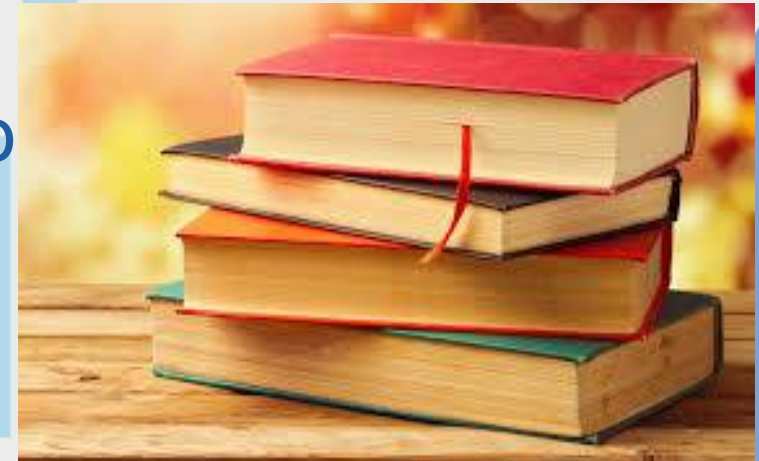# **Advantages of ARTutor**

- All books are freely available and visible from the application

- Augmentations are common file types

  (.FBX, .OBJ , .DAE created by Maya, Blender etc or .armodel for Kudan SDK)
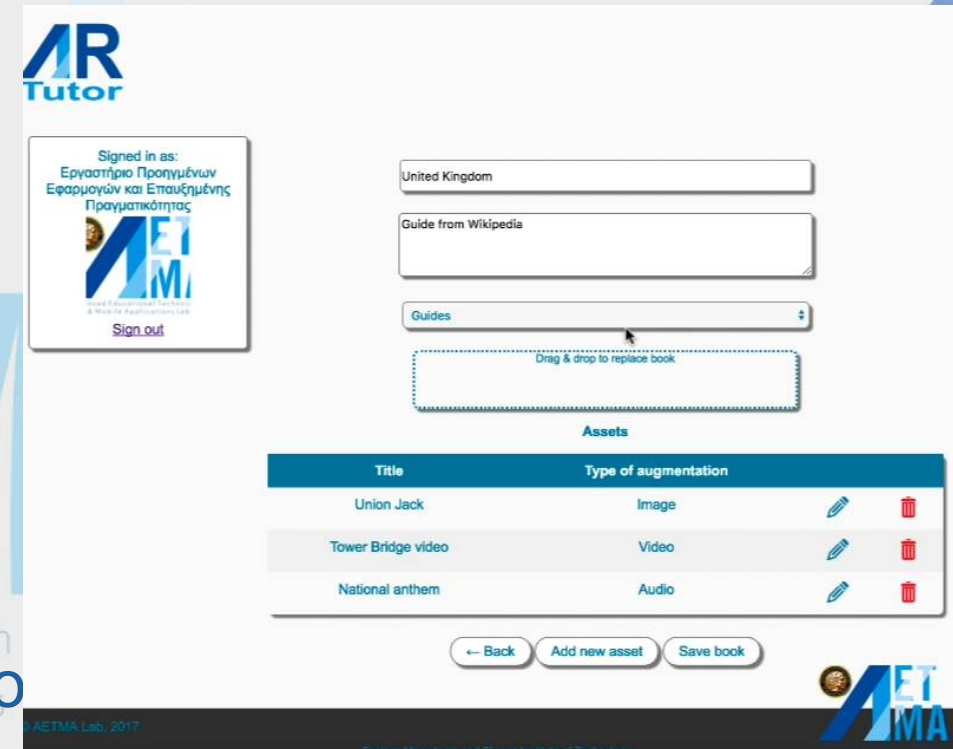
Advantages of ARTutor

- Traditional printed books can be also

- Multi-purpose (**not** only for education!)

Characteristics

AR Tutor consists of two parts :

PART A:

- Authoring tool
  - Google account login
  - Book creation
  - Association of books with augmentatio
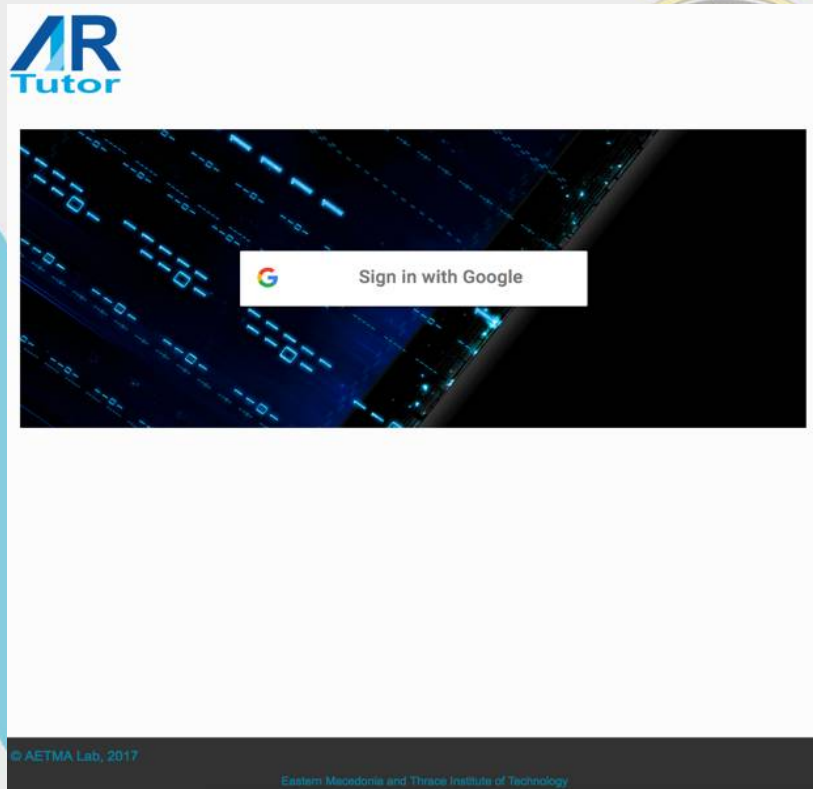 - Association of augmentations with commands

Characteristics

- PART B:
- Mobile application
  - Book selection
  - Page recognition
  - Augmentation presentation
  - Voice commands
  - Q&A system

Authoring tool

Login screen

Main screen

Book creation

- Books have a title, a description, and a category
- The book's language is also specified
- PDF files are uploaded with drag-and-drop
- When a PDF file is uploaded, the content is extracted and it is saved in a separate text file

Signed in as:
Εργαστήριο Προηγμένων Εφαρμογών και Επαυξημένης Πραγματικότητας

Sign out
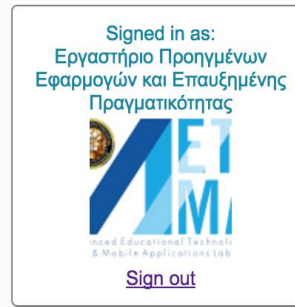
Title

Description

Select book category

Drag & drop book here

Ελληνικά

Assets

Title	Type of augmentation

← Back   Add new asset   Save book

© AETMA Lab, 2017

Eastern Macedonia and Thrace Institute of Technology

Augmentation creation (1)

- Each book can be associated with multiple augmentations
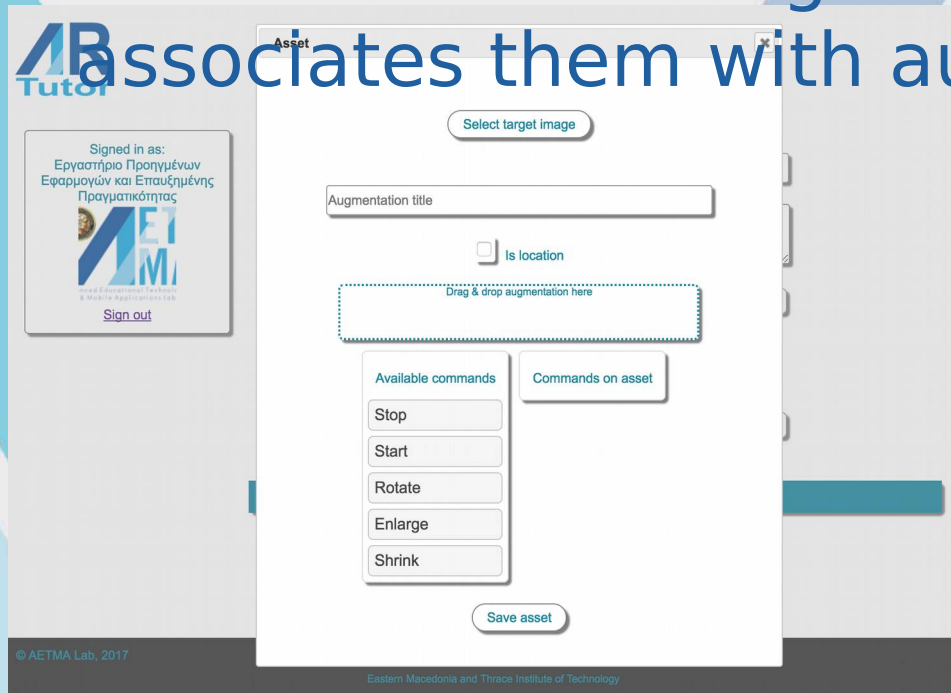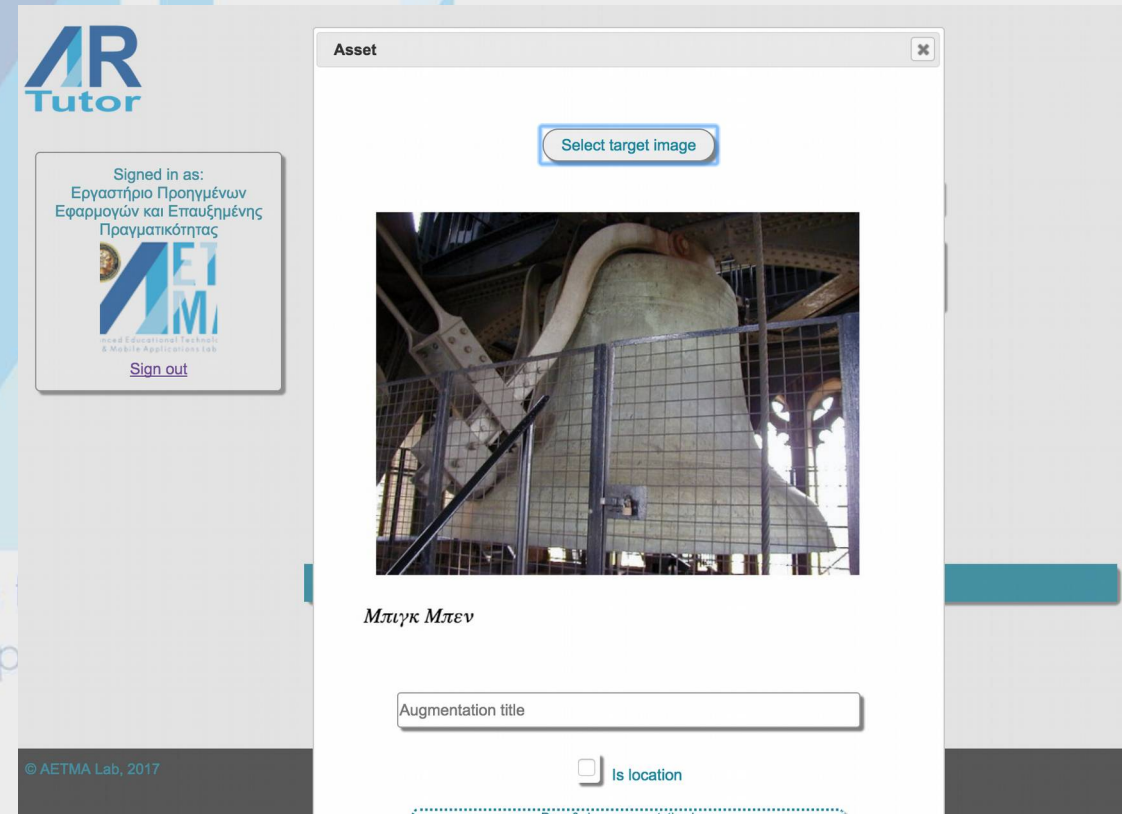- The user selects regions in various pages and associates them with augmentations

Augmentation creation (2)

- After region selection, the actual augmentation is uploaded

- Accepted types:
  - Image
  - Audio
  - Video
  - 3D models

Augmentation commands

- Depending on the augmentation type, each augmentation can also be associated with commands,

- which allow **voice interaction of the user and the augmentation**

Mobile application
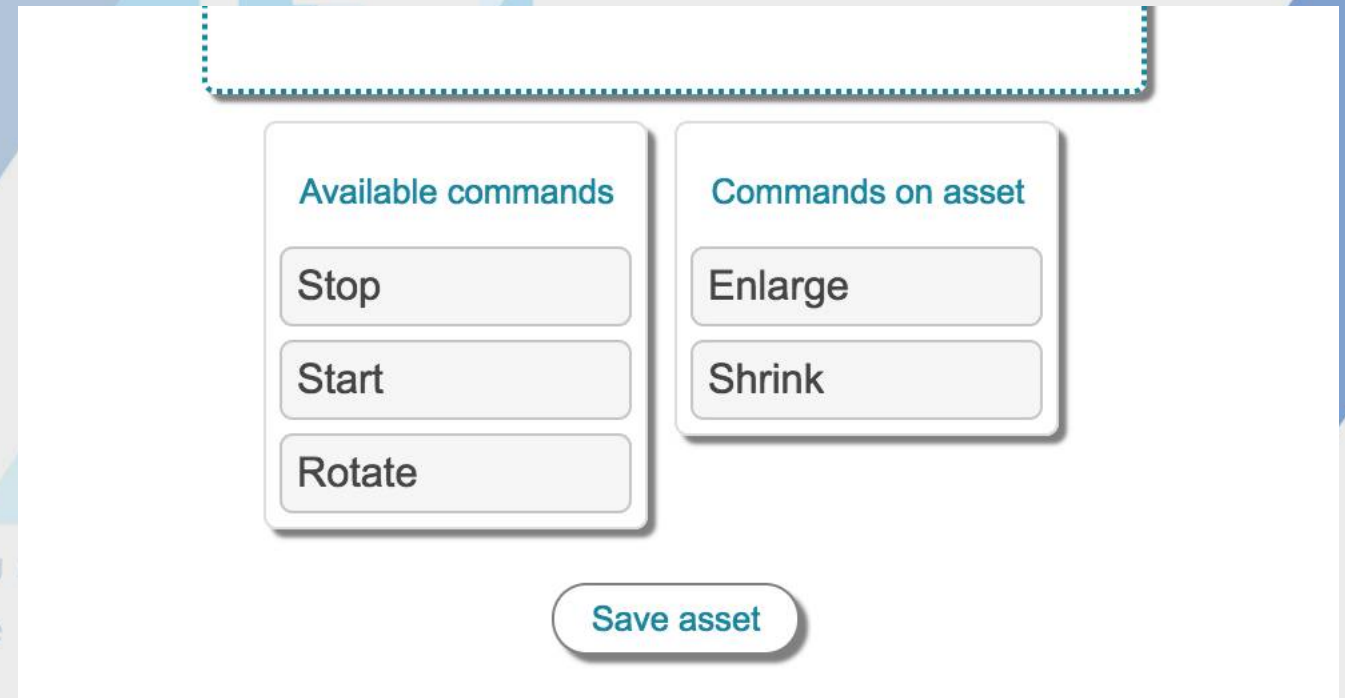
- Developed for the iOS and Android platforms

- The user initially selects one of the preset book categories
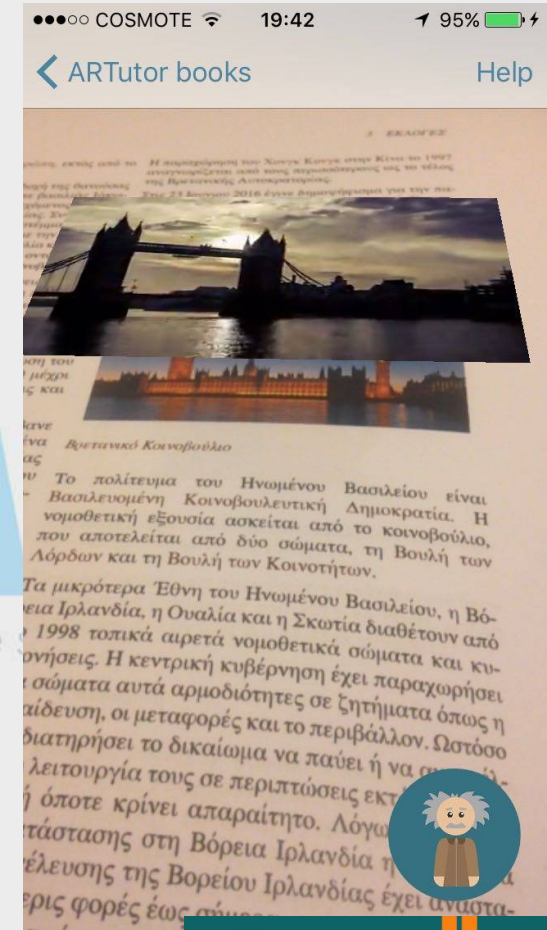
- The application fetches the corresponding books from the server

Displaying augmentations

- After book selection, the book assets (augmentations) are downloaded on the device

- Camera searches for active regions in the printed version of the book

Voice commands

- Users can interact with the augmentations using gestures (pinch to zoom, tap to start/stop, slide to rotate)
  - Based on the specified commands for each augmentation

- Commands can also be used for interaction using speech recognition
  - When an augmentation appears, the user can tap on the ARTutor icon and utter a command

Q&A system

- Tap on the ARTutor icon initiates speech recognition

- To differentiate between commands and questions, the user needs to utter the word "Question" before formulating the question
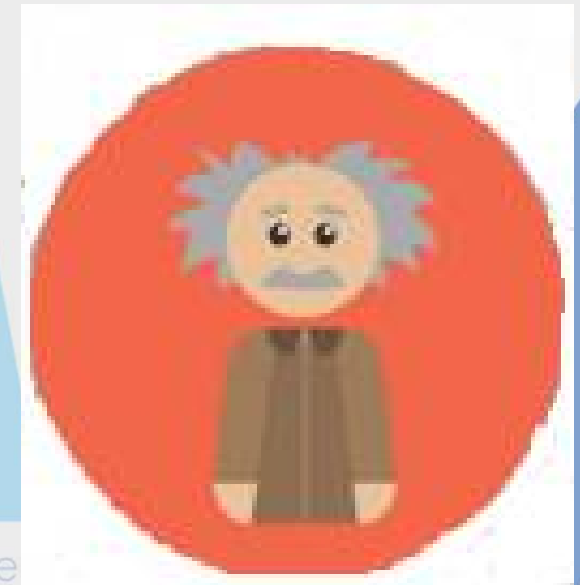
Q&A system

- The question is sent to the server and the terms are searched in the PDF

- When a match is found, the sentence containing the terms is returned to the device, and is displayed on the screen and pronounced using the Text To Speech function
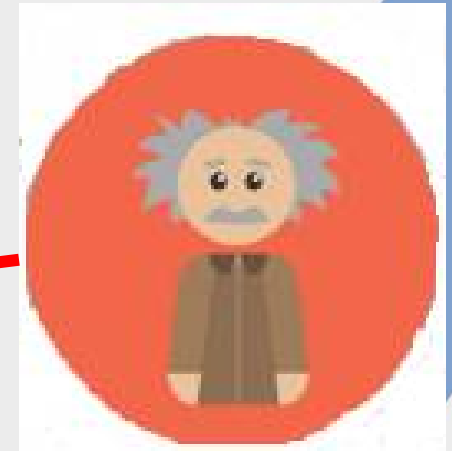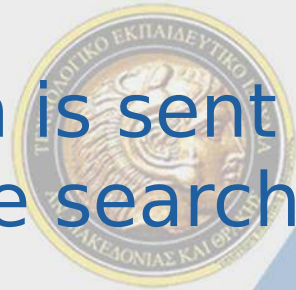
Demo video

- Creating augmentations
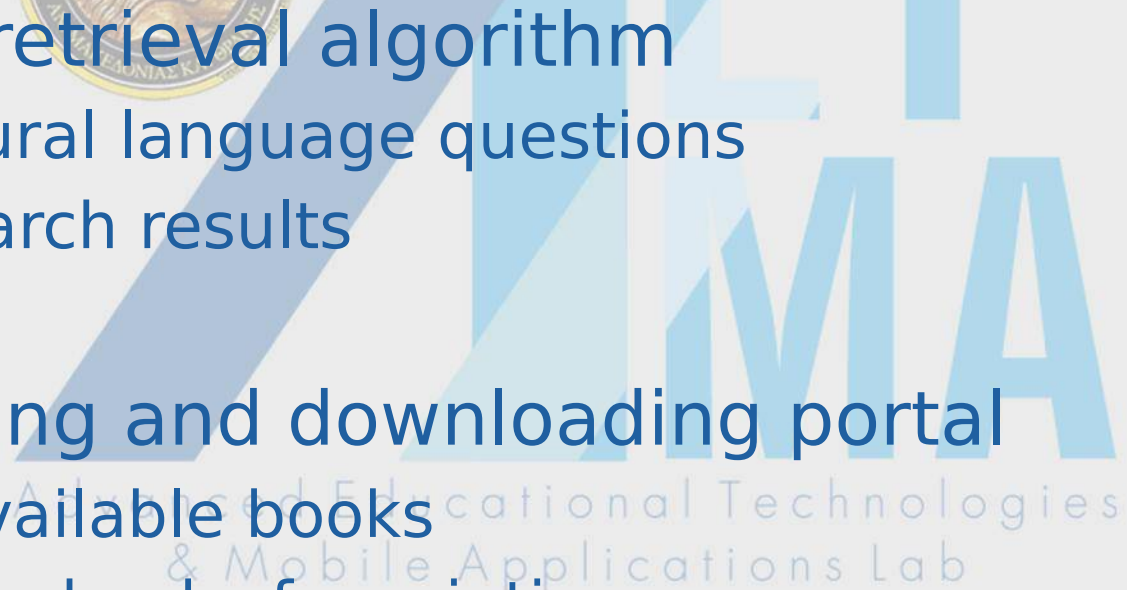- Displaying augmentations
- Voice commands
- Q&A system

Book
creation

Current developments ...

- Information retrieval algorithm
  - Handle natural language questions
  - Improve search results

- Book searching and downloading portal
  - Browsing available books
  - Downloading books for printing

Conclusions ....

ARTutor and Moodle

- **The authoring tool can be a Moodle activity**

- Augmented books
  - Developed by the teacher or the students.
  - Shared access with students participating in the course
    - Collaborative development of the augmented book

Conclusions ….

ARTutor and Moodle

- So the end user will be immersed in the Moodle and

- Moodle itself will fly to another level!

Thank you
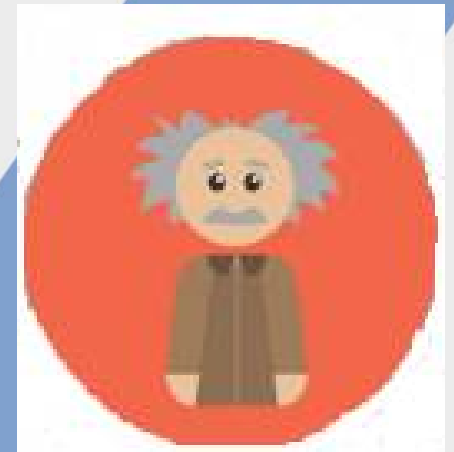
Tomorrow's illiterate *will not be the man who can't read*; he will be the man who has not learned how to learn."
(Toffler 1971)

AETMA team

Prof. Avgoustos Tsinakos,
Director of **Advanced Educational Technologies and Mobile Applications Lab**
Eastern Macedonia and Thrace Institute of Technology

Athens, 1–2 December 201