Co-funded by the
Erasmus+ Programme
of the European Union

2022-1-RO01-KA220-HED-000086424

Creative Digital Teaching And Learning For Green Air Transport And Logistics

www.Avionic.UPB.ro

REPORT PRESENTATION

New digital tools for supporting international interactive teaching and learning

Teemu Patala, Airport College International

The objectives and purpose of this action

- **WP2** – Sharing the knowledge on innovative methods for teaching and learning and identification of digital and green skills needed in air transport
- **Specific Objective 2 / WG2:**
  - **identifying good practices in teaching methods** for improving the quality and relevance of digital and green skills
  - **identifying the best practices based on IT** which could be applied for innovative teaching and learning for developing cross-disciplinary skills and the necessary competences to enhance and manage innovative sustainable systems in transport supporting the global economy, generating social benefits while ensuring a safe, efficient and environmentally responsible pathway

Planned outcomes

A. **An analysis of the general educational approach** and innovative methods for teaching at project partner universities & training institutions

B. **An analysis of different IT tools & applications**, suitable for developing students' digital skills

→ to understand the mechanisms and constraints of e-learning and IT tools

→ to identify ways to improve existing tools and pedagogical approaches

→ to suggest new pedagogical approaches that support teachers in course implementation

→ to suggest new tools for teachers – such that support teachers in course implementation

Methods used

- A Qualitative Survey (internal) to compile good practices from partner HEIs
- Classification of online learning platform features and functionalities, method developed in SEnDIng project *)
- Learning Design Thinking to shape recommendations on how to improve identified good practices and identify tools that support teachers in course implementation

*) *SENDING - 591848-EPP-1-2017-1-EL-EPPKA2-SSA*

SEnDIng

Findings

A. Best practices on innovative didactical approaches

1. Course design and development

- Employ a **systematic learning design approach** that considers different needs and learning styles of students, designing flexible and adaptable lessons and assignments.
- Emphasize didactical approaches like **project-based learning, flipped classroom, and experiential learning** to promote active learning and engagement.
- Incorporate a **multicultural approach** by using audiovisual resources and promoting diverse perspectives and understanding.
- Cater to **diverse learning styles** by using a variety of teaching methods and materials, considering visual, auditory, kinesthetic, and reading/writing preferences.
- Utilize **technology to support face-to-face teaching**, improving student engagement, participation, and the delivery of high-quality learning content.
- **Implement hybrid education approaches** that combine in-person and remote learning, creating efficient and flexible learning opportunities while promoting engagement and interaction through technology.
- Develop **collaborative inter-university MOOCs and workshops** for learning and knowledge sharing.

A. Best practices on innovative didactical approaches
2. Teaching and learning methods and approaches

- Incorporate **multimedia-based simulations and gamification** to enhance student engagement.
- Use collaborative tools to **promote collaboration and creativity** among students.
- Provide **additional resources such as video lectures and self-study programs** to reinforce students' learning.
- **Encourage student participation** and feedback through class discussions, group projects, and personal tutorials.
- **Review materials after each course** to reinforce understanding and knowledge.
- Utilize **mobile devices and mobile-friendly learning approaches** like podcasting to support learning and develop a wide range of student skills.

A. Best practices on innovative didactical approaches
3. Promoting engagement and motivation

- **Promote student engagement through technology integration, encouraging participation and feedback** to improve teaching methods and adapt to individual student needs.
- **Enhance the learning experience with interactive Virtual Learning Environments** (VLEs) that present content in various formats, conduct surveys, testing, and arrange university tutoring.
- **Foster collaboration and teamwork** by assigning students to work in teams on projects of their interest.
- **Provide additional support by conducting discussions** with students to address areas of difficulty or misunderstanding.

A. Best practices on innovative didactical approaches

4. Learning assessment

- **Incorporate preferred assessment approaches**, such as paper-based exams, group projects, and continuous assessment.
- **Assess students' understanding through discussions and role-plays**, allowing them to represent different stakeholders in aviation sustainability.

B. Digital tools for teaching and learning

AVIONIC

AVIONIC - 2022-1-RO01-KA220-HED-000086424

Co-funded by the Erasmus+ Programme of the European Union

Survey participant information
Name: *fill in here*
Role in the project: *fill in here*
Partner organization: *fill in here*
Date of form completion: *fill in here*

Action 2.3 - Prioritization of the *Features and Functionalities of Digital Tools* for Teaching and Learning

Category	Feature	**Weight** (0=useless 1=nice to have 2=useful 3=must have)	Add below your additional notes and remarks when necessary	Cat. AVG
Collaboration	Discussion board	0		**0,0**
	Live chat	0		
	Online conferencing tools	0		
	Social networking	0		
Content Authoring & Management	Editor for content authoring (for basic graphical presentations)	0		**0,0**
	Editor for content authoring (advanced supporting interactions)	0		
	Shared content authoring	0		
	Support for standard document formats	0		
	Screen recording	0		
	Learning Wiki	0		
	Students can record or upload audio and video	0		
	Audio and video messaging	0		

B. Digital tools for teaching and learning

Must have features

- 11 features and functionalities that received a minimum score of 2.5/3.0 on average
- **Categories**: Content Authoring & Management, Assessment, User Management, Reports and progress follow-up, and Usability & access
- Of all categories ***Assessment*** was prioritized most, followed by ***Reports and progress follow-up***, and ***User management***.
- None of the features in categories *Collaboration, Maintenance* & *Support*, and *Other* were considered as must have.
- **Features:** ***Simplified user registration*** and ***Support for standard document formats*** were considered most important both receiving a score of 2.8/3.0.

B. Digital tools for teaching and learning

Useful features

- A total of 19 features and functionalities in all eight categories receiving a score of 2.0-2.4/3.0 on average.

B. Digital tools for teaching and learning

Nice to have features

These include all features with a score of 1.9/3.0 or lower. Of all features ***Audio recordings*** receive the lowest average score (0.8/3.0).

B. Digital tools for teaching and learning

Category	Feature	Weight AVERAGE
Collaboration	Discussion board	2,2
	Online conferencing tools	2,4
Content Authoring & Management	Editor for content authoring (for basic graphical presentations)	2,5
	Editor for content authoring (advanced supporting interactions)	2,3
	Shared content authoring	2,7
	Support for standard document formats	2,8
	Multimedia-based simulations	2,3
Assessment	Built-in assessment tools	2,5
	Support for external assessment/evaluation tools	2,3
	Exam engine	2,7
	Peer-assessment	2
User Management	Self-enrollment	2,3
	Simplified user registration	2,8
	Course notifications	2,7
	Calendar / event management	2,5

B. Digital tools for teaching and learning

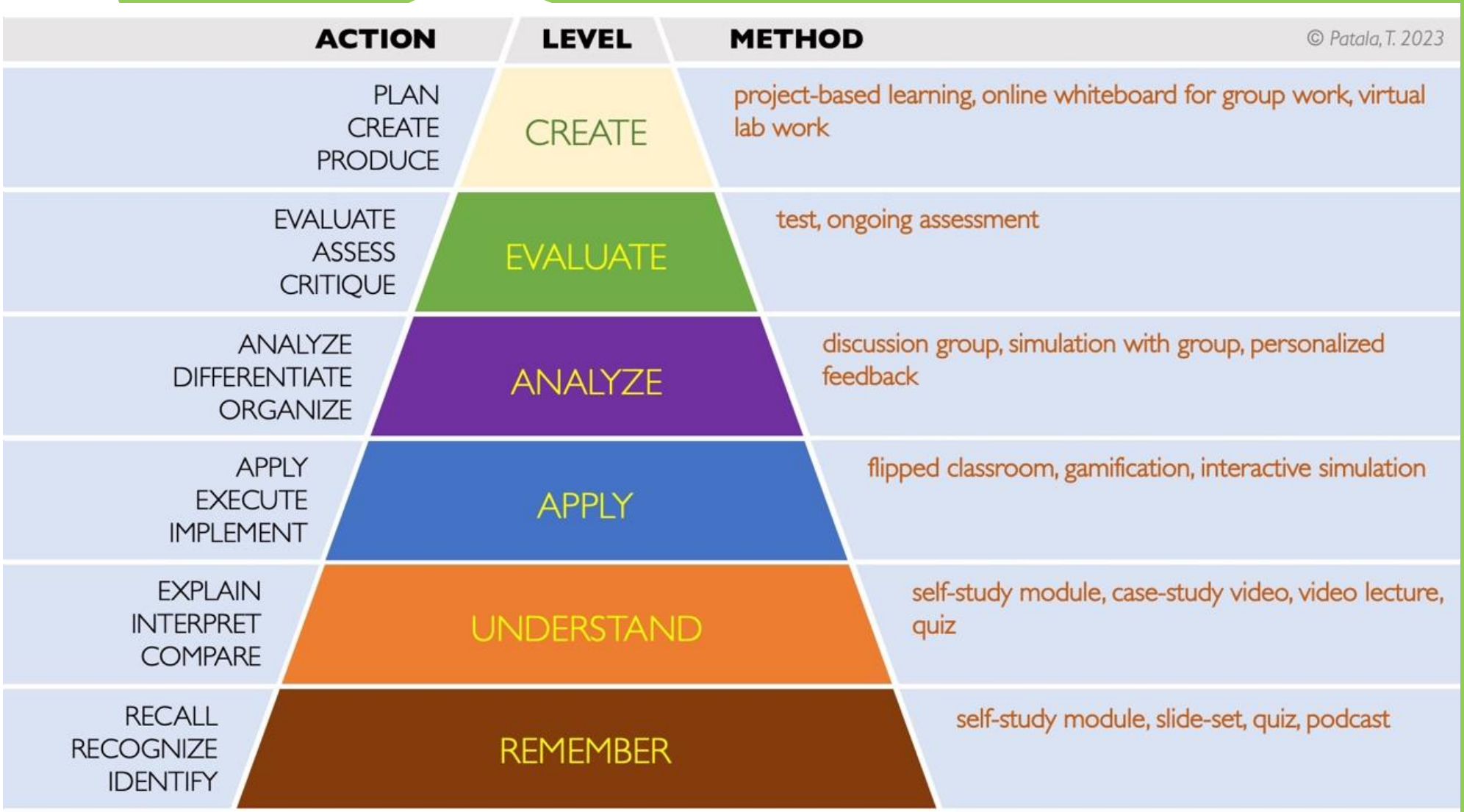
Reports and progress follow-up	Tracking of personal progress	2,7
	Analytics & reporting (basic)	2,7
	Analytics & reporting (advanced incl. Visualizations)	2,2
	Certifications & cert. Management	2,2
	SCORM Support (incl. Use of external course packages)	2,2
Usability & access	Personalized learning	2,4
	Search	2,3
	Full support for mobile use	2
	Course catalog	2,7
	Support for instructor-led classes	2,3
	Multi-lingual user interface	2
	Offline mode	2
Maintenance & support	Automated updates	2,1
	Automated backups	2
Other	Support for external service integrations	2

What next?

How to exploit the collected data?

- A sound pedagogical basis is needed
  - **Bloom's Taxonomy** (Bloom 1956) / Alignment of teaching/learning approaches based on **cognitive demand** (Patala & Bruce 2018)
- Systematic design and development approach
  - **Learning Design** thinking

Alignment based on Cognitive Demand



Why Learning Design is needed?

System-Centric

vs.

Learning-Centric

LEARNING DESIGN

"Using the most appropriate educational methods and means to plan and implement an educational intervention which allows learners to gain particular knowledge or understanding or acquire a particular skill by study, instruction or experience."

Creative Digital Teaching And Learning For Green Air Transport And Logistics

Thank You!
Merci!

This publication is a result of the “Creative Digital Teaching and Learning for Green Air Transport and Logistics (AVIONIC)” Project 2022-1-RO01-KA220-HED-000086424.

This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.