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Implementing multilingual MOOCs in European University Alliances with the help of AI usage, LTI and open licenses: Technical & organizational challenges

July 2025, Paris, EMOOCS conference

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Full paper



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Agenda

1. Background
2. Challenges of MOOCs in European University alliances
3. Our case: An multilingual alliance-wide MOOC and lecture about OER
4. (Some) Results
5. Lessons Learned

BACKGROUND

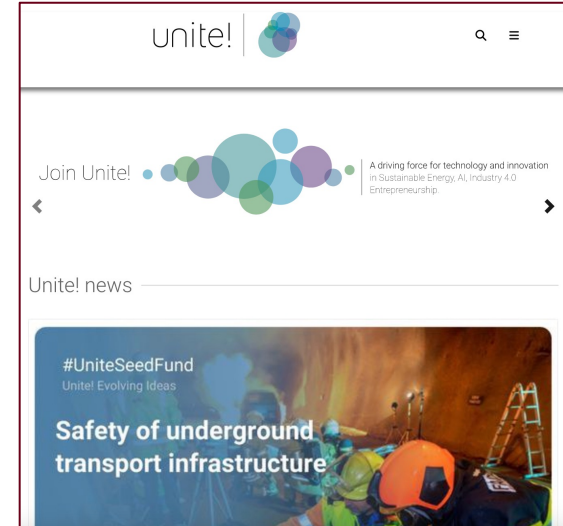
Background: The University Alliance Unite!



<https://www.unite-university.eu/>

From Unite! Mission Statement 2030:

“Unite! creates the hybrid (virtual, physical and blended) and multilingual Unite! trans-European Campus with easily accessible joint educational offerings, shared and pooled resources, efficient services and green mobility”



© Unite! alliance, <https://www.unite-university.eu/>

Background: TU Graz leads Unite! Community 2 „Digital Campus“



- Cm.2 is responsible („only“) for digital infrastructure for teaching and learning
- Challenges in digital collaboration and infrastructure integration
- All publications:
<https://repository.tugraz.at/communities/unitedigitalcampus/>

CHALLENGES OF MOOCS IN EUROPEAN UNIVERSITY ALLIANCES

Preparational work: Analysis of legal, organizational and technological challenges for using MOOCs in European university alliances (2023)

	Challenge	Potential solution
Legal	Usage of content and MOOCs must be permitted (by a contract e.g.).	Allowed usage, if openly licensed.
	Translation of the materials should be possible.	Allowed usage, if openly licensed.
Organizational	Different curricula and MOOCs need to be aligned.	Standards as ECTS and other curriculum framework might help.
	Multilingual user guidance and support.	Staff of partner university might be integrated in user support.
Technical	Simple registration needed.	EduGAIN.
	MOOC content and achievements should be accessible for partner universities.	LTI interfaces need to be developed and adapted for all universities and/or a common campus. A federated LMS instance might be helpful.
	Clarify the possible exchange of user data.	Needs a clear description of ALL existing systems and potential interfaces and/or a common campus according to GDPR.

Table 2.

Further challenges and potential solutions for using MOOCs in European university alliances.

Ebner, M., Gaspilmayr, K., Kreuzer, E., Leitner, P., Schön, S., & Taraghi, B. (2023). Implementation of MOOCs for microcredentialls and European university alliances. In S. Goundar (Ed.), Massive open online courses – Current practice and future trends. IntechOpen.
<https://doi.org/10.5772/intechopen.1001466>

The Challenge

Implementing a multilingual,
openly licensed MOOC
(about OER) within Unite!
(a federated university
network)



RESEARCH QUESTIONS

Research Questions

What are the key technical and organizational challenges in implementing multilingual MOOCs within a European university alliance?

How can AI and LTI support their successful deployment?



OUR CASE

Our case

The production and implementation of a multilingual MOOC about the topic „Open Educational Resources in Higher Education“ as part of a lecture for all (offered by TU Graz).

Co-Funded as Unite! seed fund project „Unite! OER courses“ from 11/2023 to 10/2024 (Unite Erasmus+, 2022-2026)



Wrocław University
of Science and Technology



Politecnico
di Torino



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH



LISBOA

UNIVERSIDADE
DE LISBOA



A!

Aalto-yliopisto
Aalto-universitetet
Aalto University

TECHNISCHE
UNIVERSITÄT
DARMSTADT

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



Unite! Seed fund project

'OER courses'

Unite! OER courses -

An open education initiative to develop
open science competencies
within Unite!

(10/2023-09/2024)

(One) Project goal: To spread and share knowledge about Open Educational Resources

„Open Educational Resources (OER) are learning, teaching and research materials in any format and medium that reside in the **public domain** or are under copyright that have been **released under an open license**, that **permit no-cost access, re-use, re-purpose, adaptation and redistribution** by others.“

OER definition
by UNESCO

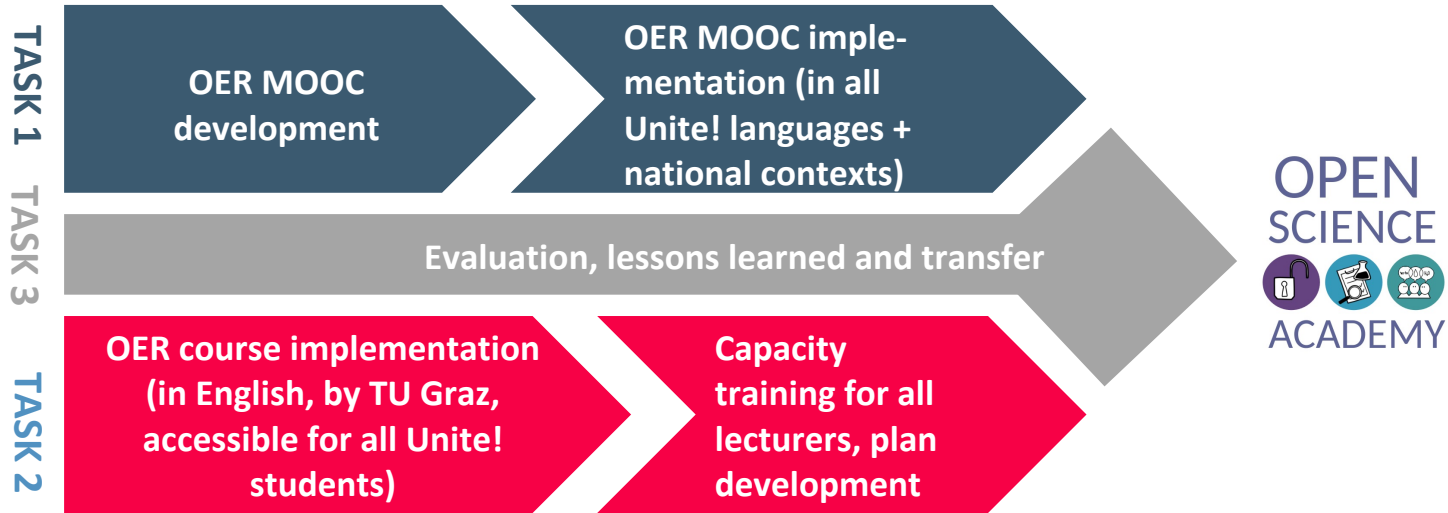


OER (knowledge) is important within European university alliance for different reasons

- Clear legal framework
 - No/less copyright infringements
 - Sustainability
 - Digital sovereignty
 - European funding
-
- Impact
 - Reach
 - Open Science

Ebner, M., & Schön, S. (2025, März 13). Beyond Open Access: Open Educational Resources (OER) for Legal Clarity, Sustainability, and Digital Sovereignty in European University Alliances. Presentation at the Unite! Ed Future Conference, March 13, 2025. <https://doi.org/10.3217/cz2rm-g9g13>

Work plan



1. MOOC is OER itself

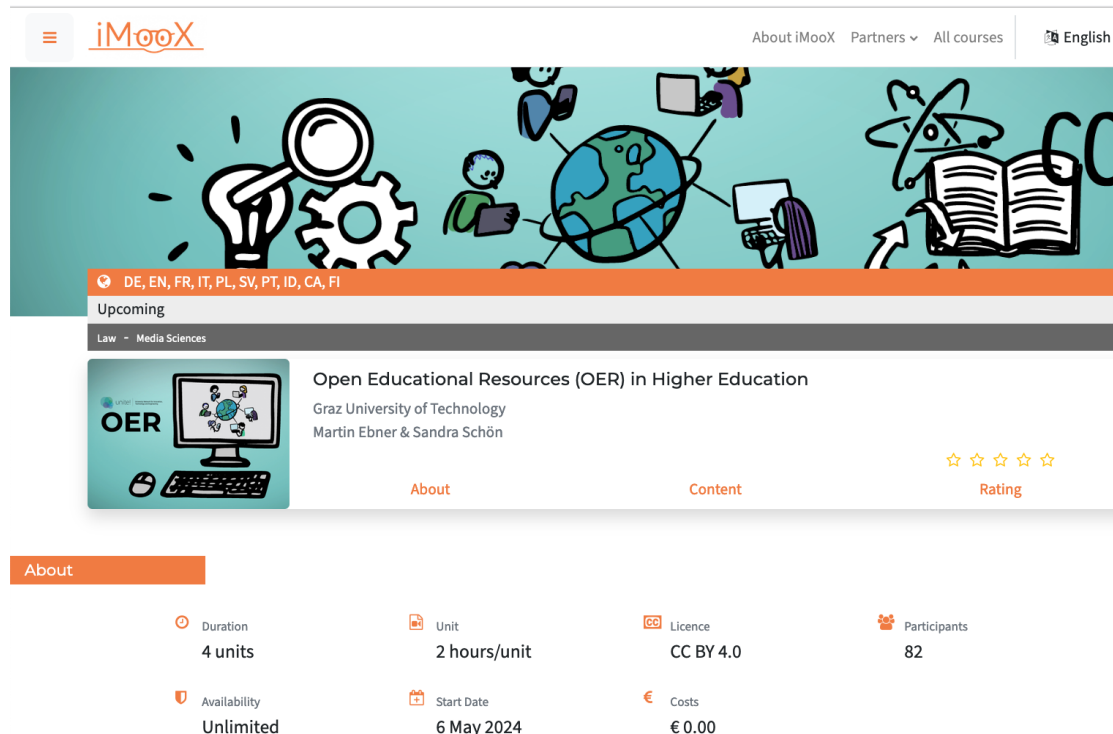
The MOOC "OER in HE" is OER itself

The MOOC OER in HEI
is open licensed!

You find it here:

<https://imoox.at/course/OERinHE>

You are invited to use (parts) in your
own teaching or integrate it as a
whole!

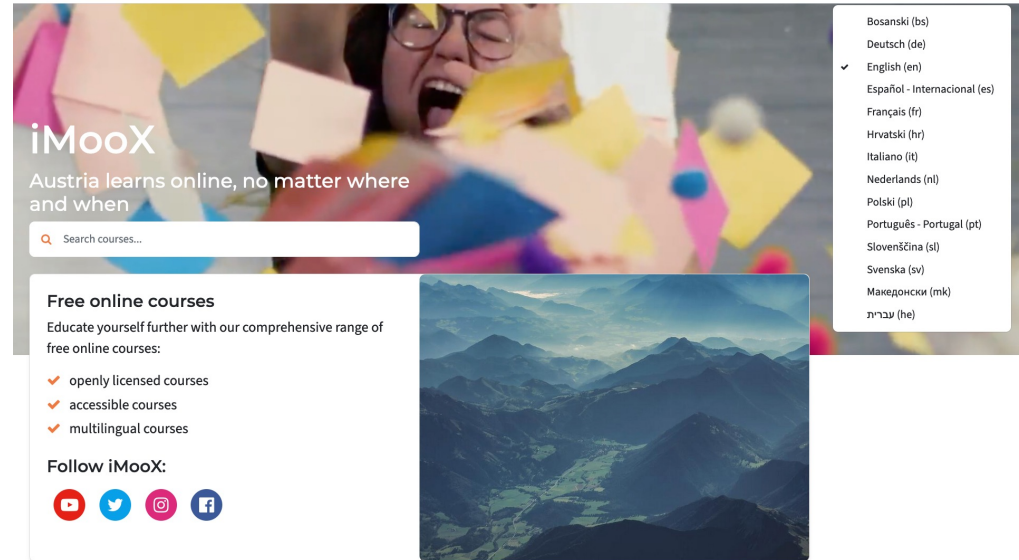
The screenshot shows the iMooX interface for the MOOC "Open Educational Resources (OER) in Higher Education". The header includes the iMooX logo and navigation links: "About iMooX", "Partners", "All courses", and a language selector set to "English". The main banner features a colorful illustration of educational icons like a lightbulb, gears, a globe, and books. Below the banner, a language filter bar lists: "DE, EN, FR, IT, PL, SV, PT, ID, CA, FI". The course is categorized under "Upcoming" and "Law - Media Sciences". The course title "Open Educational Resources (OER) in Higher Education" is displayed, along with the provider "Graz University of Technology" and instructors "Martin Ebner & Sandra Schön". A star rating of 5 stars is shown. Navigation tabs for "About", "Content", and "Rating" are present. The "About" tab is active, showing details: Duration (4 units), Unit (2 hours/unit), Availability (Unlimited), Start Date (6 May 2024), Licence (CC BY 4.0), Costs (€ 0.00), and Participants (82).

Property	Value
Duration	4 units
Unit	2 hours/unit
Availability	Unlimited
Start Date	6 May 2024
Licence	CC BY 4.0
Costs	€ 0.00
Participants	82

The MOOC is provided at iMooX.at



- iMooX.at is the national Austrian MOOC platform hosted by TU Graz
- It only offers CC licensed courses and is one of the most important OER initiatives in Austria



2. Multilingual offer with the help of AI and involvement of all partners

The MOOC is multilingual

9 Unite! languages and versions

- Deutsch (de) – TU Graz, TU Darmstadt
- English (en) – Unite! version
- Français (fr) – Grenoble INP-UGA
- Italiano (it) - Polito
- Polski (pl) – Wrocław Tech
- Portugues (pt) – Universitat Lisboa
- Svenska (sv) - KTH
- Suomi (fi) - Aalto
- Catalan (ca) - UPC



Unite! | University Network for Innovation,
Technology and Engineering



**Co-funded by
the European Union**

Additional 3 (!) language versions



- Indonesian (in) by Dr. M. Kharis, Universitas Negeri Malang
- Turkish (tu) by Prof. Dr. Engin Kursun, Atatürk Üniversitesi
- Arabic (ar) by Bouchra Aboura (University of Oran 2)

Trailer for Open Educational Resources (OER) in Higher Education



AI was used – This is NOT me!



Martin's
Avatar



Sandra's
Avatar

Video example produced with AI support

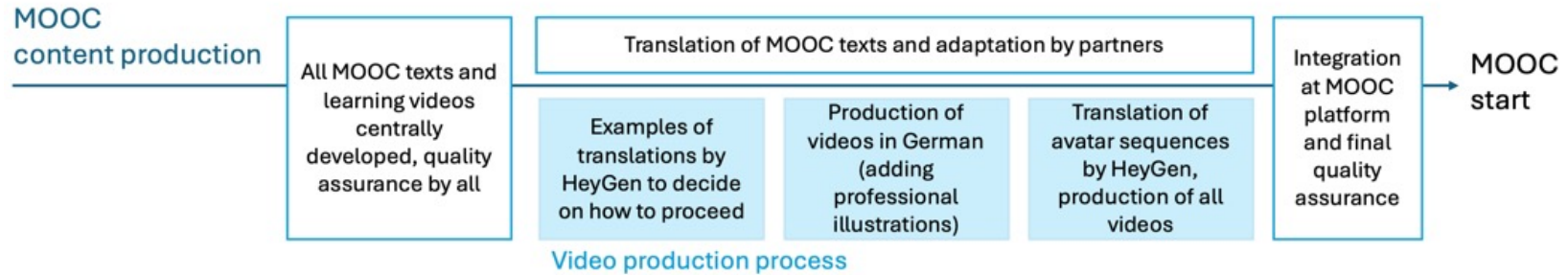
Video example:
The introduction

You find the
videos in all
languages as well
here:

<https://www.youtube.com/playlist?list=PLhy2nHJciTEDWpS0YFh1zewb32u22JzvW>



MOOC development overview



3. Integration into higher education and learning platforms

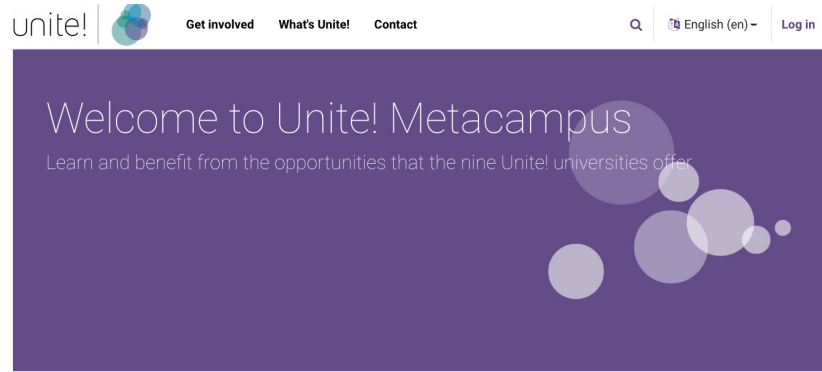
The LMS infrastructure of the European university alliance Unite! in early 2024



Table 2: Overview of key issues concerning LMS in partner institutions of Unite! (10/2023). Source: Ebner et al. 2024c

	Main LMS	Open-Source	Secondary LMS	LTI interface	MOOC platform	EduGAIN
TU Graz	Moodle	YES	-	YES	Moodle	YES
ULisboa	Fenix Platform	YES	Moodle, Open edX	NO (Moodle: YES)	Open edX	YES
UPC	Moodle	YES	-	YES	-	YES
PoliTO	DIDATTICA	YES	Moodle	YES	Open edX	YES
UGA-INP	Moodle	YES	Chamilo	YES	-	YES
TUDa	Moodle	YES	-	YES	-	YES
Wroclaw Tech	Moodle	YES	-	YES	-	YES
KTH	Canvas	NO	-	YES	Open edX	YES
Aalto	Moodle	YES	-	YES	Moodle	YES

Unite!'s Metacampus Platform



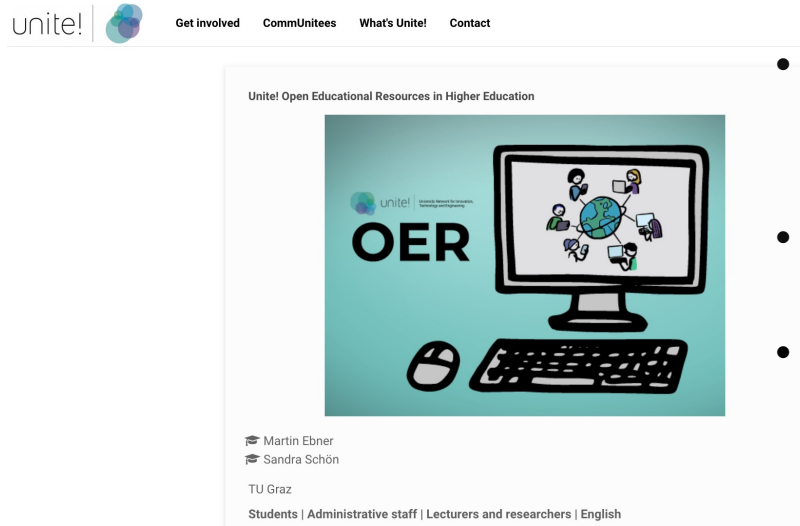
Federated Learning Management System (LMS) based on Moodle (Open Source)

<https://metacampus.unite-university.eu/>

Features: interaction, multilingual support, eduGAIN authentication

© Metacampus, Unite!

OER lecture by TU Graz at Unite! Metacampus

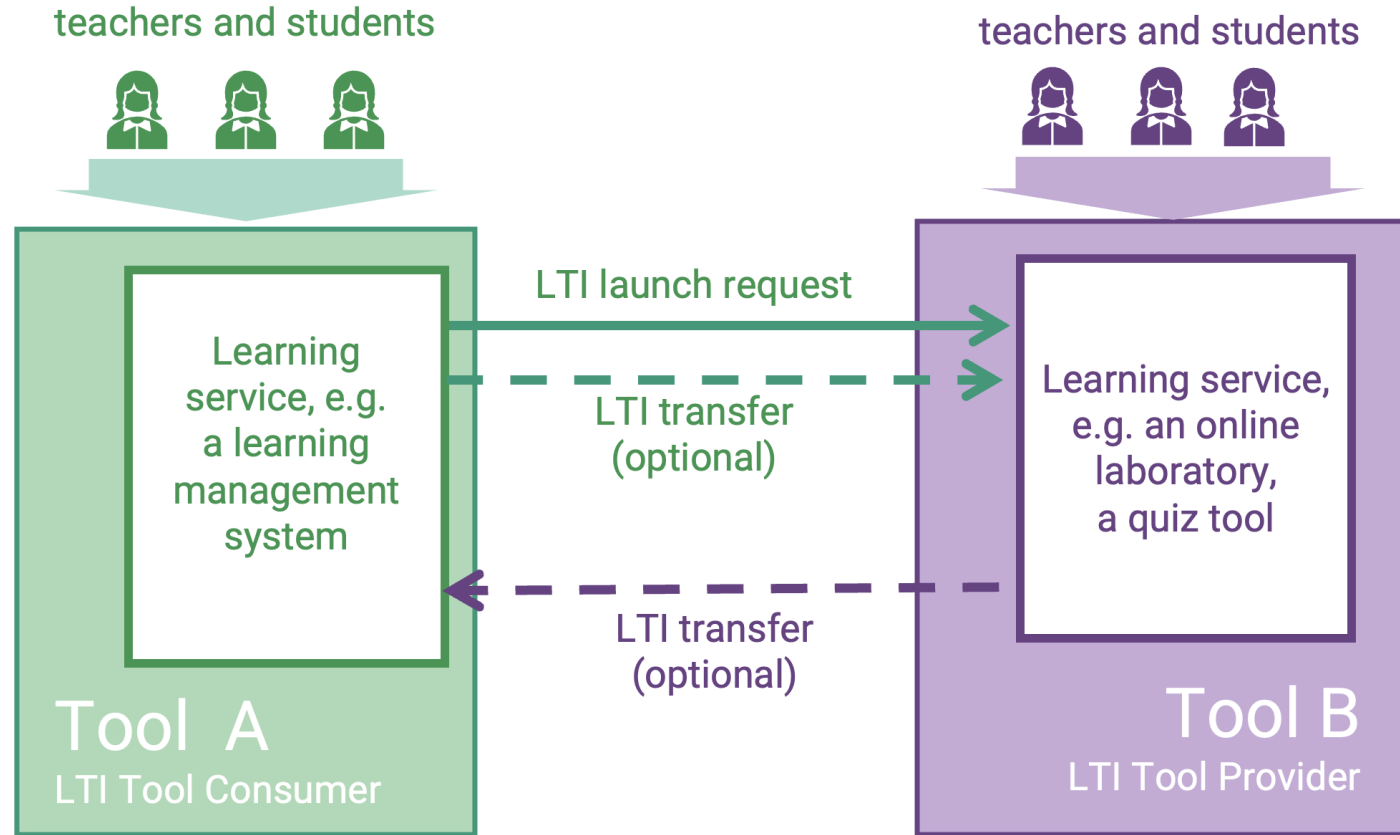


- The Metacampus is Unite!'s federated learning management system (<https://metacampus.unite-university.eu/>)
- No registration needed as Unite! member (e-mail-adress, EduGain)
- Although it is a university lecture, of course teachers and staff was invited as well to participate!

Link to course: <https://metacampus.unite-university.eu/course/info.php?id=95>

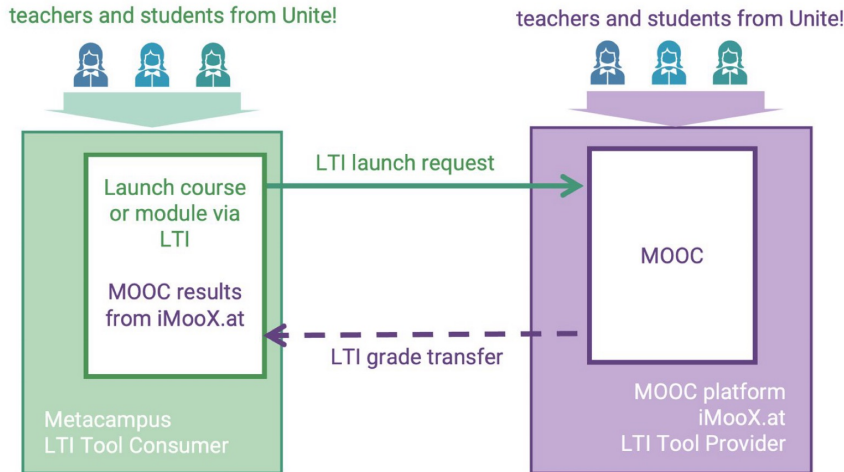
How LTI works

31



LTI connection between Metacampus & iMooX.at

- For easy access iMooX.at was successfully connected to Unite!'s Metacampus (via LTI, learning tools interoperability)



More

Schön, S., Ebner, M., & Gasplmayr, K. (2024). Connecting platforms via LTI: The university course "OER in HE" and the connection of Metacampus with iMooX.at. Unite! Digital Teaching and Learning - Success Story Report" edited by Martin Ebner, Katharina Gasplmayr and Sandra Schön, 2/2024. <https://doi.org/10.3217/v8nta-ayw79>

Schön, S., Ebner, M., Edelsbrunner, S., Gasplmayr, K., Hohla-Sejkora, K., Leitner, P. & Taraghi, B. (2024). Federated virtual learning management in a European University alliance: General challenges and first experiences using LTI to connect LMS in Unite!. In T. Bastiaens (Ed.), Proceedings of EdMedia + Innovate Learning (pp. 132-145). Brussels, Belgium: Association for the Advancement of Computing in Education (AACE). Retrieved July 11, 2024 from <https://www.learntechlib.org/primary/p/224514/>

How it looked like in Unite!'s Metacampus

unite!



My spaces

Get involved

CommUnitees

What's Unite!

Contact



Participant



Unite! OER lecture / Open Educational Resources (OER) in Higher Education



Open Educational Resources (OER) in Higher Education

Mark as done



iMooX

About iMooX

Partners

All courses



My course:

My courses

Open Educational Resources (OER) in Higher Education
Graz University of Technology
Martin Ebner & Sandra Schön

0% completed



Course description and trailer



Forum 50



Announcements



Unit 1

1



Open Educational Resources (OER) in Higher Education

Graz University of Technology
Martin Ebner & Sandra Schön

Welcome to course forum!

The course forum provides the appropriate place for discussions with your fellow students. In the case of active courses, the course participants are supervised by the teacher and the courses are no longer supervised during inactive courses, but the participants are still

Stay fair!



Participate!



Respect!



4. Certification: Open badge and an Austrian certificate

Open Badge “OER in HE” issued

- Metacampus offers Open Badges
- Open Badges are digital certificates issued in Moodle to recognize participation, skills, or achievements. They follow an open standard and include verifiable metadata.

Key Features:

- Issued automatically or manually
- Includes recipient email, course data, and achievement criteria
- Stored and archived in Moodle
- Email notification with export option (e.g. to Badgr)
- Secure, verifiable, and interoperable

Austrian national OER certificate issued



Zertifikate Zertifizierung Antragstellung Testimonials Ressourcen Kontakt

Login  DE

personenzertifikate



OER
Practitioner |
OER-
Praktiker:in

Personen, die erfolgreich an [akkreditierten OER-Weiterbildungen](#) teilgenommen haben, erhalten auf [Antrag](#) das Zertifikat "OER Practitioner | OER-Praktiker:in", das eine eindeutige Kennung hat.

Einen schnellen Überblick über die ihnen zugeordneten Personenzertifikate (auch aus Perspektive der Weiterbildung) erhalten Hochschulen [im eigenen Profil](#).

Bisher ausgestellte Zertifikate im Jahr 2025

- P-2025-001 Hermann Klocker-Mark, Pädagogische Hochschule Tirol
- P-2025-002 Madeline Meyer, Universität Graz
- P-2025-003 Francesco Carraro, Technische Universität Graz
- P-2025-004 Daniela Lippe, Universität Graz
- P-2025-005 Astrid Weiß-Fanzlau, Universität Klagenfurt
- P-2025-006 Benjamin Kremmel, Universität Innsbruck
- P-2025-007 Birgit Schulz, Technische Universität Graz

Ausgestellte Zertifikate im Jahr 2024:

- P-2024-001 Marcus Ossiander, Technische Universität Graz
- P-2024-002 Christoph Heil, Technische Universität Graz

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Zertifikate für Personen
wurden bereits
ausgestellt!



Mehr zur Zertifizierung
von Personen

- P-2024-051 Julia Zerninger, Pädagogische Hochschule Oberösterreich
- P-2024-058 Benedikt Brünner, Technische Universität Graz
- P-2024-059 Elizabeth Keller
- P-2024-060 Katja Urak, Technische Universität Graz
- P-2024-061 Alexander Zmug, Technische Universität Graz
- P-2024-062 Amara Hofer, Technische Universität Graz
- P-2024-063 Kerstin Margaretha Zöhrer, Technische Universität Graz
- P-2024-064 Gerald Geier, Pädagogische Hochschule Steiermark
- P-2024-065 Leonhard Klug, Technische Universität Graz
- P-2024-066 Alexander Bardel, Technische Universität Graz
- P-2024-067 Christian Nosko, Kirchliche Pädagogische Hochschule
- P-2024-068 Christopher Albert, Technische Universität Graz
- P-2024-069 Christina Mühlthaler, Technische Universität Graz

Source: Screenshots from Austrian National OER certificate page
CC BY 4.0 fnma OER-Zertifikat.at -
<https://www.oer-zertifikat.at/oer/de/zertifikate/personenzertifikat>

RESULTS

Some figure on impact

MOOC "OER in Higher Education"

- **833 registered participants** (July 19, 2024):
- **1,418 registered participants** (June 30, 2025)
- **3 additional languages** (Indonesian, Turkish, Arabic)
- **Implementation of MOOC materials** into regular university course about Open Science (KTH), OER lecture (TU Graz), OER trainings (several Austrian universities, e.g. University of Vienna)

Higher Education OER Policies: Examples from institutional to European level, Mar 13, 2024

Lectures and seminars, Staff trainings, Support for teams, Training to support research

Learn about policies on Open Educational Resources with researchers Dr. Sandra Schön, Dr. Martin Ebner, and Dr. Rubén Vicente-Saez.

A?

Higher Education OER Policies Examples from institutional to European level



Aktuelles • Schulungen • Digitale Lehre • Digitale Verwaltung • Über uns •

Aktuelles / Neuigkeiten / OER in der Hochschule – neuer MOOC startet am 6. Mai

OER in der Hochschule – neuer MOOC startet am 6. Mai



Der neue MOOC "Open Educational Resources (OER) in Higher Education" informiert zu offenen Bildungsressourcen im Hochschulraum. In der deutschsprachigen Version wird die Situation aus Perspektive der TU Darmstadt (Deutschland) und der TU Graz (Österreich) beschrieben.

Weil ein breites Projektteam – mit Partnern der europäischen Universitätsallianz UNITE! sowie weiteren – dabei ist und Künstliche Intelligenz zur Hilfe genommen wird, sprechen die Avatare der Kursleitung Martin Ebner und Sandra Schön.

e-teaching.org

Ein Angebot
des IWM

Menü

Online-Events Digital Learning Map Themenspecials Hybride Lernräume Podcast

Startseite / News & Trends / Notizblog

OER im europäischen Hochschulraum: Mehrsprachiger MOOC startet am 6. Mai

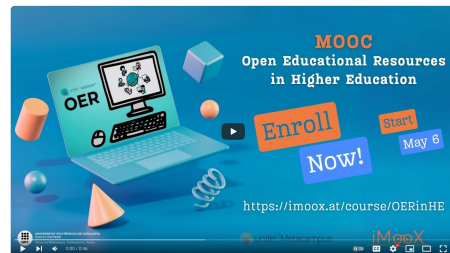
02.04.2024 | VERANSTALTUNGSHINWEIS

Die Technische Universität Graz veranstaltet ab dem 6. Mai 2024 einen mehrsprachigen kostenlosen MOOC (Massive Open Online Course) zum Thema OER in Higher Edu vier Einheiten zu jeweils 2 Stunden erhalten Studierende und Lehrende von Hochschulen im europäischen Raum in vier Wochen eine Einführung in das Konzept OER.



Der erste deutschsprachige MOOC zum Thema der offenen Bildungsressourcen ist schon mehr als ein Jahrzehnt alt: Der COER13 wurde damals u.a. von e-teaching.org und der TU Graz mitorganisiert.

Seitdem hat sich einiges zum Thema OER getan und die Nachfrage nach Fortbildungen, sowie Materialien zum Selbstlernen ist deutlich gestiegen. Was zunächst für einige wenige interessant erschien, wird heute als wichtiger Aspekt von Open Science und Kompetenz für Hochschulreife gehandelt. Damit das Wissen zum urheberrechtssicheren Gestalten von



MOOC Unite! Open Educational Resources (OER) in Higher Education

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Share Like Save

Overview of perceived impact of the “Unite! OER courses” project for the partners who provided feedback (December 2024)

Partner	Perceived impact
Aalto University	■ ■
KTH Royal Institute of Technology	■ ■
Politecnico di Torino	■ ■
Universidade de Lisboa	■ ■
TU Graz	■ ■ ■
TU Darmstadt	■

0 = **No impact**: No discernible effect on activities or outcomes.

■ = **Some impact (not measurable)**: Minor influence, but difficult to quantify or prove.

■ ■ = **Moderate impact (measurable)**: Measurable effects with moderate influence on practices, resources, or learning outcomes.

■ ■ ■ = **Significant impact**: Strong, measurable influence that contributes noticeably to teaching, learning, or institutional practices.

(■ ■ ■ ■ = Transformative Impact)

Source: Schön, S., Ebner, M., Hohla-Sejkora, K., Keller, E., Rapp, A., Ribeiro, M.H., Segradin, R., & Vicente-Saez, R.(2025). A multilingual OER MOOC: A case study on production and usage in a university cooperation. Journal of Open, Distance, and Digital Education,2(1), 1-16. <https://doi.org/10.25619/y956n017>

LESSONS LEARNED

Technical Challenges and mitigation issues when implementing a MOOC for a European alliance in relation to the case study

Challenge	Mitigation Strategy (if)
Ensuring seamless integration of the MOOC across different LMS platforms via LTI	Extensive LTI testing and phased pilot implementations to ensure compatibility
Browser compatibility issues affecting user experience and account synchronization	Identified and documented browser-specific problems, recommending Chrome/Edge
AI-generated translations and avatars lacking accuracy and consistency	Manual review by native speakers and iterative quality assurance processes
Synchronization of course grades between federated LMS systems	Automated grade transfer setup with synchronization intervals and manual checks

Organisational Challenges + mitigation

Challenge	Mitigation Strategy (if)
Coordination among multiple universities with different policies and infrastructures	Flexible collaboration model with a shared core curriculum and local adaptations
Managing multilingual course content across diverse institutional contexts	Use of AI-assisted translation with human oversight to maintain quality
Adapting video scripts to avoid any problems with automatic translations	Test and develop strategies and adapt texts to avoid potential mistakes.
Videos need to be professionally edited in all languages by experts	No.
Lack of formal agreements for certification and mutual recognition of credits	Implementation of Open Badges, institutional certificates, and national certifications

Legal Challenges and mitigation issues

Challenge	Mitigation Strategy (if)
Compliance with GDPR when using external MOOC platforms	Careful selection of platforms ensuring compliance
Copyright and licensing complexities for shared educational materials	Use of CC BY 4.0 licensing to facilitate reuse, modification, and broad dissemination

MORE

Acknowledgements

Support of e-learning and IT experts from partner universities from Unite!

Funding from the European Commission (Erasmus+)

unite!

University Network for Innovation, Technology and Engineering



**Co-funded by
the European Union**



READ MORE



All publications from the Unite! Digital Campus team can be found here:

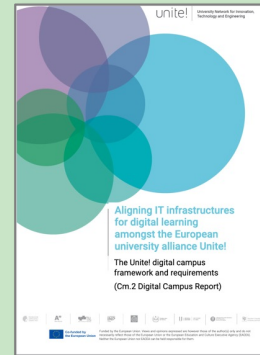
<https://repository.tugraz.at/communities/unitedigitalcampus/>

The report series „Unite! Digital Teaching and Learning Success Story Report Series“:

<https://repository.tugraz.at/communities/unitesuccessstoryreport/>

Publications and presentations about the „Unite! OER courses“ project:

<https://repository.tugraz.at/communities/uniteoer/>



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