

EDULEARN¹⁸

**10TH INTERNATIONAL CONFERENCE
ON EDUCATION AND NEW LEARNING
TECHNOLOGIES**

**PALMA (SPAIN)
2ND - 4TH OF JULY, 2018**



CONFERENCE PROCEEDINGS



EDULEARN¹⁸

**10TH INTERNATIONAL CONFERENCE
ON EDUCATION AND NEW LEARNING
TECHNOLOGIES**

**PALMA (SPAIN)
2ND - 4TH OF JULY, 2018**

CONFERENCE PROCEEDINGS

Published by
IATED Academy
iated.org

EDULEARN18 Proceedings
10th International Conference on Education and New Learning Technologies
July 2nd-4th, 2018 — Palma, Mallorca, Spain

Edited by
L. Gómez Chova, A. López Martínez, I. Candel Torres
IATED Academy

ISBN: 978-84-09-02709-5
ISSN: 2340-1117
Depósito Legal: V-1578-2018

Book cover designed by
J.L. Bernat

All rights reserved. Copyright © 2018, IATED

The papers published in these proceedings reflect the views only of the authors. The publisher cannot be held responsible for the validity or use of the information therein contained.

EDULEARN18 COMMITTEE AND ADVISORY BOARD

Agnes Kriz	AUSTRIA	Ignacio Ballester	SPAIN	Marta Dziluma	LATVIA
Agustín López	SPAIN	Ignacio Candel	SPAIN	Martin Maltais	CANADA
Aleksandra Kulpa-Puczynska	POLAND	Ingolf Waßmann	GERMANY	Michael Cronin	ITALY
Aline Grunewald Nichele	BRAZIL	Irina Khoutyz	RUSSIAN FED.	Michal Palko	SLOVAKIA
Amparo Girós	SPAIN	Isabel Huet	U. KINGDOM	Michela Baraldi	UNITED STATES
Ana Mouta Costa	PORTUGAL	Iván Martínez	SPAIN	Minerva Cordero	UNITED STATES
Ana Tomás	SPAIN	Ivana Ogrizek Biskupic	CROATIA	Norbert Englisch	GERMANY
Anita Habók	HUNGARY	Janet Herrelko	UNITED STATES	Norma Barrachina	SPAIN
Ann Conway	IRELAND	Janine Delahunty	AUSTRALIA	Olyesya Razdorskaya	RUSSIAN FED.
Antonio García	SPAIN	Javier Domenech	SPAIN	Paolo Somigli	ITALY
Ashling Ryan-Mangan	IRELAND	Javier Martí	SPAIN	Patricia Reynolds	UNITED STATES
Beata Godejord	NORWAY	Joanna Lees	FRANCE	Patsy Robles-Goodwin	UNITED STATES
Béatrice Arend	LUXEMBOURG	Jose F. Cabeza	SPAIN	Peter Haber	AUSTRIA
Berhannudin Mohd Salleh	MALAYSIA	Jose Luis Bernat	SPAIN	Petr Sudicky	CZECH REP.
Celia MacDonnell	UNITED STATES	Josephine Desouza	UNITED STATES	Piedade Vaz-Rebelo	PORTUGAL
Charles Elkabas	CANADA	Josephine Munthali	U. KINGDOM	Piotr Berkowski	POLAND
Chelo González	SPAIN	Judith Szerdahelyi	UNITED STATES	Rafael Fernández-Flores	MEXICO
Chris Schaben	UNITED STATES	Kalaimagal Ramakrishnan	MALAYSIA	Rahimah Embong	MALAYSIA
Christian Bourret	FRANCE	Kari Björn	FINLAND	Rita Kumar	UNITED STATES
Cole Webber	CANADA	Kateřina Vitásková	CZECH REP.	Roma Kriaučiūnienė	LITHUANIA
Cristiano Luchetti	U.A.E.	Kristin Brogan	IRELAND	Rosa Karnita	U. KINGDOM
Cristina Sayuri Dusi	BRAZIL	Laura Bordi	FINLAND	Sabina Maraffi	ITALY
Daniel Boulos	UNITED STATES	Lorena López	SPAIN	Sergio Pérez	SPAIN
Davi De Conti	BRAZIL	Luís Descalço	PORTUGAL	Shaun Speed	U. KINGDOM
David Dalton	U.A.E.	Luis Gómez Chova	SPAIN	Shujaat Wasty	CANADA
David Martí	SPAIN	Lynn Boyle	U. KINGDOM	Svein Thore Hagen	NORWAY
Despina Varnava Marouchou	CYPRUS	M ^a Jesús Suesta	SPAIN	Tetyana Antimirova	CANADA
Douglas Baleshta	CANADA	Margaret Mackay	U. KINGDOM	Thomas Rachfall	GERMANY
Dragos Tataru	ROMANIA	Marge Täks	ESTONIA	Tiziano Telleschi	ITALY
Eladio Duque	SPAIN	M de Nazaré Souza Ribeiro	BRAZIL	Tolga Akbulut	TURKEY
Emine Kuluşaklı	TURKEY	Maria Porcel	SPAIN	Tomas Kala	CZECH REP.
Filip Devos	BELGIUM	Maria ReGester	UNITED STATES	Victor Fester	NEW ZEALAND
Fritz Vandover	UNITED STATES	Maria Schwarz-Woelzl	AUSTRIA	Vidar Gynnild	NORWAY
Garold Zborovsky	RUSSIAN FED.	Maria-Iuliana Dascalu	ROMANIA	Vincenza Benigno	ITALY
Gemma van Vuuren Cassar	U. KINGDOM	Mario De Tullio	ITALY	Wendy Gorton	UNITED STATES
Hen Friman	ISRAEL	Mark Wilkinson	SINGAPORE	Xavier Lefranc	FRANCE

CONFERENCE SESSIONS

ORAL SESSIONS, 2nd July 2018

Immersive Learning & Virtual Reality
Peer Learning and Teaching
21st Century Skills (1)
Students' Wellness and Wellbeing
Quality and Excellence in Teacher Training
English as a Foreign Language (1)
Mobile Learning
ICT in Education
Active Learning (1)

Virtual Reality in Education
Flipped Learning
Workplace Learning (1)
Joint and Dual Degrees
Teacher Training Experiences
Professional Development of Foreign Language Teachers
Programming and Coding Skills (1)
Technology Enhanced Learning (1)
Active and Game-Based Learning

Augmented Reality in Education
Learning by Doing & Experiential Learning
Workplace Learning (2)
University-Industry Collaboration
ICT Skills among Teachers (1)
Health Education Technologies
Programming and Coding Skills (2)
Educational Games Design
Active Learning (2)

Social Media and Social Networks in Education
Project, Problem and Inquiry-Based Learning
Entrepreneurship Education
International Collaboration Experiences
ICT Skills among Teachers (2)
Engineering Education
Learning Space Design
Digital Skills & Media Literacy
Dropout Prevention & Students' Motivation

POSTER SESSIONS, 2nd July 2018

Emerging Technologies in Education
Pedagogical Innovations and New Educational Trends

ORAL SESSIONS, 3rd July 2018

e-Learning Experiences (1)

Videos for Learning

Special Education (1)

Language Learning Education

Cultural Diversity & Inclusion (1)

Curriculum Design in Engineering

Learning Analytics (1)

Tutoring & Mentoring

Writing Skills and Performance

Learning Management Systems (LMS)

Serious Games

Special Education (2)

Technology Enhanced Learning (2)

Pre-Service Teacher Education

Language Learning: from ESP to EMI

Learning Analytics (2)

e-Assessment

Quality Assurance and Accreditation in Higher Education

Personalized Learning

Blended Learning

Teacher Training in Special Education

STEM Education (1)

Professional Development of Teachers

Language Learning Technologies

Informal Learning

New technologies in Assessment

Leadership and Management in Education

Massive Open Online Courses (MOOC)

Flipped Classroom

Special Needs and Inclusive Education

Maths and Statistics in Higher Education

Creativity in Education

English as a Foreign Language (2)

Gamification & Game-Based Learning

Assessment of Student Learning (1)

Management in Higher Education

e-Learning Experiences (2)

Effective Teaching Practices

Cultural Diversity & Inclusion (2)

STEM Education (2)

Soft Skills Development

Business and Accounting Education

21st Century Skills (2)

Assessment of Student Learning (2)

Sustainability Education

POSTER SESSIONS, 3rd July 2018

Experiences in Education

Global Issues in Education and Research

VIRTUAL SESSIONS

21st Century Skills
Academic Research Projects
Augmented Reality
Barriers to Learning
Blended Learning
Collaboration Projects and Networks
Computer Supported Collaboration
Curriculum Design and Development
Design Thinking and Creativity
Diversity Issues, Women and Minorities
E-content Management and Development
e-Learning Projects and Experiences
Early Childhood and Preschool Education
Educating the Educators
Education and Globalization
Educational Management
Educational Software & Serious Games
Educational Trends and Best Practice Contributions
Emerging Technologies in Education
Enhancing Learning and the Undergraduate Experience
Entrepreneurship Curriculum
Ethical Issues in Education
Evaluation and Assessment
Evaluation and Assessment of Student Learning
Experiences in Research
Flipped Learning
Game Based Learning
Higher and Further Education
Higher Education Area: The Bologna Declaration and ECTS Experiences
Impact of Education on Development
Informal learning
Language Learning Innovations
Leadership in Education
Learning and Teaching Methodologies
Learning by doing & Experiential Learning
Learning Management Systems (LMS)
Lifelong Learning
Links between Education and Research
Massive Open Online Courses (MOOCs)
Mobile and Tablet Technologies
Mobile Learning
Multicultural Education
Neuroscience in Education
New Learning/Teaching Models
Online/Virtual Laboratories
Organizational, Legal, Policy and Financial Issues
Pre-service and In-service Teacher Experiences
Primary and Secondary Education
Problem and Project-Based Learning
Professional Development of Teachers
Quality Assurance and Accreditation
Social & Digital Media in Education
Special Education & Inclusive Learning
STEM in Education
Student Support in Education
Team-Based and Collaborative Learning
Technology-Enhanced Learning
The Impact of Web Technologies on Education
Training Educational Staff
Transferring Skills and Disciplines
University-Industry Cooperation
Virtual Learning Environments (VLEs)
Virtual Reality and 3D Applications
Vocational Training
Web 2.0 and Social Networking
Workplace Training and Employability Issues

ABOUT EDULEARN18 Proceedings

HTML Interface: Navigating with the Web browser

This USB Flash drive includes all presented papers at EDULEARN18 conference. It has been formatted similarly to the conference Web site in order to keep a familiar environment and to provide access to the papers through your default Web browser (open the file named "EDULEARN18_Proceedings.html").

An Author Index, a Session Index, and the Technical Program are included in HTML format to aid you in finding conference papers. Using these HTML files as a starting point, you can access other useful information related to the conference.

The links in the Session List jump to the corresponding location in the Technical Program. The links in the Technical Program and the Author Index open the selected paper in a new window. These links are located on the titles of the papers and the Technical Program or Author Index window remains open.

Full Text Search: Searching EDULEARN18 index file of cataloged PDFs

If you have Adobe Acrobat Reader version 6 or later (www.adobe.com), you can perform a full-text search for terms found in EDULEARN18 proceedings papers.

Important: To search the PDF index, you must open Acrobat as a stand-alone application, not within your web browser, i.e. you should open directly the file "EDULEARN18_FrontMatter.pdf" with your Adobe Acrobat or Acrobat Reader application.

This PDF file is attached to an Adobe PDF index that allows text search in all PDF papers by using the Acrobat search tool (not the same as the find tool). The full-text index is an alphabetized list of all the words used in the collection of conference papers. Searching an index is much faster than searching all the text in the documents.

To search the EDULEARN18 Proceedings index:

1. Open the Search PDF pane through the menu "Edit > Advanced Search" or click in the PDF bookmark titled "SEARCH PAPERS CONTENT".
2. The "EDULEARN18_index.pdx" should be the currently selected index in the Search window (if the index is not listed, click Add, locate the index file .pdx, and then click Open).
3. Type the search text, click Search button, and then proceed with your query.

For Acrobat 9 and later:

1. In the "Edit" menu, choose "Search". You may receive a message from Acrobat asking if it is safe to load the Catalog Index. Click "Load".
2. A new window will appear with search options. Enter your search terms and proceed with your search as usual.

For Acrobat 8:

1. Open the Search window, type the words you want to find, and then click Use Advanced Search Options (near the bottom of the window).
2. For Look In, choose Select Index.
3. In the Index Selection dialog box, select an index, if the one you want to search is available, or click Add and then locate and select the index to be searched, and click Open. Repeat as needed until all the indexes you want to search are selected.
4. Click OK to close the Index Selection dialog box, and then choose Currently Selected Indexes on the Look In pop-up menu.
5. Proceed with your search as usual, selecting other options you want to apply, and click Search.

For Acrobat 7 and earlier:

1. In the "Edit" menu, choose "Full Text Search".
2. A new window will appear with search options. Enter your search terms and proceed with your search as usual.

ADULET PROJECT – THE COMMUNITY OF PRACTICE PLATFORM

Vítor Gonçalves, Isabel Chumbo, Elisabete Mendes Silva, Maria Raquel Patrício

Escola Superior de Educação, Instituto Politécnico de Bragança (PORTUGAL)

Abstract

The innovation of Europe's Higher Education systems results mainly from the use of emerging technologies for education and training. Higher education teachers should be prepared to have adequate knowledge, skills or abilities to deal with it in the most suitable way. Technology enhanced learning is the broad approach to using technology to support teaching and learning processes more effectively. In this sense, Advanced use of Learning Technologies in higher education (AduLeT) project has been set up, a collaborative research project funded by the European Commission, involving seven partner countries, running from November 2016 to August 2019. AduLeT aims to improve the teaching quality of lecturers by enhancing their skills regarding the use of technologies in an advanced way. It also aims at training the lecturer on how a specific teaching method can be combined with a certain technology in addition to providing guidelines, best practice and strategy concepts for lecturers and universities. This support system is being implemented as a community of practice (CoP) with all the results of the project and driven by pedagogical aspects. The CoP should also provide the possibility to get into contact with other lecturers and share experiences about teaching with Technology Enhanced Learning (TEL). The present paper intends to expose the system of CoP as well as its usage, explaining methods and tools, looking for a problem, user experiences and barriers. The platform consists in an application developed with an author programming tool which makes navigation and interaction flexible, visual, easy and coherent. The platform has been developed to provide users with a useful experience and to ensure inspired teaching and equipped with the skills required to enhance lectures' current practice. Our experience shows that a CoP could facilitate the adaptation process and allow a faster and more effective transferability of teaching innovations between different countries as well as between lecturers and universities at a national level.

Keywords: AduLeT, community of practice system, technology enhanced learning.

1 INTRODUCTION

In connection with the priority "Supporting the implementation of the 2013 Communication on Opening Up Education", the Advanced use of Learning Technologies in higher education (AduLeT) project aims at encouraging and supporting lecturers in higher education to use learning technologies in an advanced way in their teaching, thus improving the quality and relevance of higher education. AduLeT is a project funded with the support of the Erasmus + programme of European Union, running from 01/11/2016 to 31/08/2019. It is promoted by the consortium formed by the Ludwigsburg University of Education (Germany), Complutense University of Madrid (Spain), Humak University of Applied Sciences (Finland), Pallas Athene University (Hungary), Open University of the Netherlands (Netherlands), Polytechnic Institute of Bragança (Portugal) and PIXEL – Associazione Culturale (Italy). Lecturers and teaching staff at the universities involved in the project will further develop their skills and knowledge about active and recently developed forms of Technology Enhanced Learning (TEL) in higher education teaching. The lecturers will get to know which teaching methods are suitable for different TEL scenarios. Moreover, guidelines for the effective use of TEL tools are being developed. In this way lecturers will simultaneously acquire digital skills and learning methods, in accordance with the aims of the strategic framework "Education and Training 2020" i.e. strongly focused on digital competence. A community of practice (CoP), which will live beyond the project's timeframe, is being developed for knowledge exchange, providing a wide number of lecturers with an environment where they can find helpful information for their teaching, as well as enable opportunities for lecturers to get in contact and share experiences about teaching with TEL. The CoP as a support platform will present all project results aimed at educational audiences.

In this paper we intend to describe the system of CoP, developed in an open source platform, as well as its usage, explaining methods and tools, looking for a problem, user experiences and barriers. The paper is structured as follows: Section 2 provides an overview of CoP, Section 3 describes the CoP platform, Section 4 presents some considerations and concludes the paper.

2 COMMUNITY OF PRACTICE

The term community of practice was coined in 1991 by Jean Lave and Etienne Wenger while studying apprenticeship as a learning model. The term was first used to describe learning through practice and participation, named “situated learning” [1]. In 1998, Wenger abandoned the concept of legitimate peripheral participation and used the idea of the inherent tension in a duality instead: “Communities of practice are an integral part of our daily lives. They are so informal and so pervasive that they rarely come to explicit focus, but for the same reasons they are also quite familiar. Although the term may be new, the experience is not” [2].

For Wenger, learning is associated with social participation – the individual as an active participant in the practices of social communities and in the construction of his/her identity through these communities [3]. Therefore, a community of practice is an organized group of people who have a common interest in a particular domain, who collaborate regularly to share information and experiences, improve competences and actively work on developing the knowledge of the domain. According to Wenger [3] a CoP must have three distinct components to be considered a community of practice: Domain (an area of shared interest), Practice (a shared body of knowledge, experiences, and techniques) and Community (a self-selected group of individuals who care enough about the topic to participate in regular interactions). A community of practice is a group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis [3].

Digital technology enriches our interactions and expands the possibilities for communities to share practice that open up new opportunities for developing learning ability, link people with similar practices, support communication and make available a shared repository of information resources. More information about the project and the main results of the development of the Community of Practices can be found in the project website [4].

3 ADULET- COP PLATFORM

There are many different tools, software and technologies that can support the implementation of communities of practices, such as, website, forums, blogs, social networks or wikis.

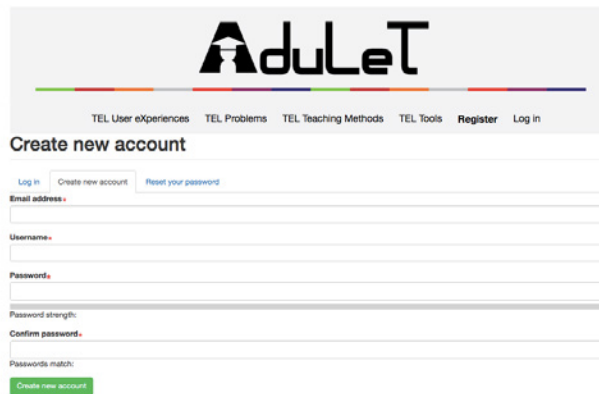
Even though it is still in progress, AduLeT CoP platform [5] has been designed and developed in accordance with the mission of the project and the perceptions among all partners, also following Wenger's principles. AduLeT platform (Fig. 1) was developed in open source software – Drupal. It is a content management software used to make websites and applications versatile, create structured content and dynamic web experiences. If the requirements need more scalability and new functionalities, Drupal is highly configurable and flexible for adding new features and customizing the layout. Its tools help us build the structured content our dynamic web platform needs.



Figure 1. AduLeT CoP - <https://dev.adulet.eu>.

AduLeT team is currently developing and testing the CoP. Below is a list of certain agreed requirements among all partners that are being tested:

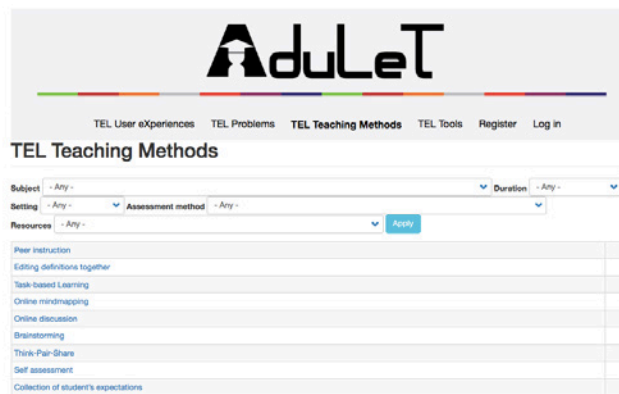
- User management – user can self-register and edit his/her own profile; administrator can manage users (Fig. 2).



The screenshot shows the 'Create new account' page of the AduLeT CoP. At the top is the AduLeT logo. Below it is a navigation bar with links: TEL User eXperiences, TEL Problems, TEL Teaching Methods, TEL Tools, Register, and Log in. The main heading is 'Create new account'. There are three links: 'Log in', 'Create new account', and 'Reset your password'. Below these are input fields for 'Email address', 'Username', 'Password', 'Confirm password', and a 'Passwords match' checkbox. A green 'Create new account' button is at the bottom.

Figure 2. AduLeT CoP – create new account.

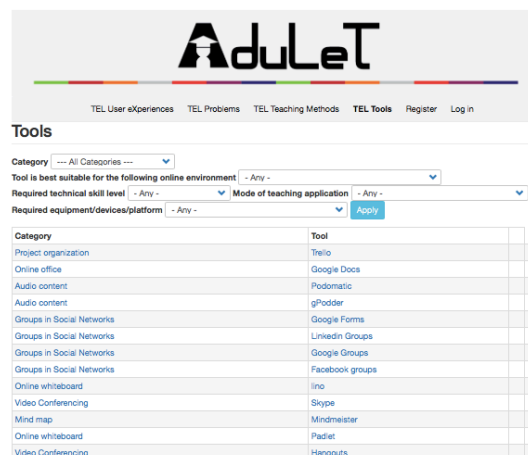
- Collection of teaching methods – repository of teaching methods based on the information collected with the teaching methods template; create TEL methods by administrator and user; delete, duplicate, modify and share teaching methods; user can comment on a teaching method (Fig. 3).



The screenshot shows the 'TEL Teaching Methods' page of the AduLeT CoP. At the top is the AduLeT logo. Below it is a navigation bar with links: TEL User eXperiences, TEL Problems, TEL Teaching Methods, TEL Tools, Register, and Log in. The main heading is 'TEL Teaching Methods'. There are several dropdown menus for 'Subject', 'Setting', 'Assessment method', 'Duration', and 'Resources'. An 'Apply' button is next to the 'Resources' dropdown. Below these are several rows of teaching methods, each with a title and a checkbox.

Figure 3. AduLeT CoP – TEL teaching methods.

- Collection of TEL tools – repository of TEL tools based on the information included in the TEL tools template; create TEL tools by administrator and user; delete, duplicate, modify and share TEL tools; create TEL tools categories by administrator; user can comment on a tool. (Fig. 4).



The screenshot shows the 'Tools' page of the AduLeT CoP. At the top is the AduLeT logo. Below it is a navigation bar with links: TEL User eXperiences, TEL Problems, TEL Teaching Methods, TEL Tools, Register, and Log in. The main heading is 'Tools'. There are several dropdown menus for 'Category', 'Tool is best suitable for the following online environment', 'Required technical skill level', 'Mode of teaching application', and 'Required equipment/devices/platform'. An 'Apply' button is next to the 'Required equipment/devices/platform' dropdown. Below these are several rows of tools, each with a category, a tool name, and a checkbox.

Figure 4. AduLeT CoP – TEL tools.

- Collection of TEL problems - repository of TEL problems; create a new TEL problem or click on a problem to see its methods and tools. (Fig. 5).

Figure 5. AduLeT CoP – TEL problems.

- User Experiences - combination teaching methods with multiple tools, view of a matrix where methods are crossed with tools (this matrix should be generated after identifying or selecting the problem) (Fig. 6).

	Task-based Learning	Self assessment	Online discussion	Collection of student's expectations
Trello	•			
gPodder				
Podomatic	•			
Google Forms		•		
LinkedIn Groups				
Google Groups				
Facebook groups			•	
lms				
Skype				
Padlet				
Adobe connect				

Figure 6. AduLeT CoP – TEL user eXperiences.

The CoP is being developed to present the content that makes finding information simpler, participation easier and that is aesthetically more appealing. The CoP will provide the possibility to get into contact with other lecturers, to share experiences about teaching with TEL and to improve and extend the existing results of AduLeT after the project ends, thus sharing good practice.

4 CONCLUSIONS

The AduLeT CoP can make a difference to lecturers' practices by providing opportunities for technology enhanced learning. AduLeT CoP will be evaluated to check whether it is easy to use and meet the goals put forth. Thus, a selected number of lecturers at each partner university is already getting involved in the project as they participate in "build the community" workshops. Consequently, we are eager to receive feedback from them, our real users. The main goal is to enable lecturers to use innovative learning scenarios in their teaching based on the provided examples. At these workshops lecturers get to know how to use technologies in an advanced way based on the collected learning methods combined with appropriate technologies.

We believe that the AduLeT CoP is a promising way to help lecturers improve the teaching quality, build connections and collaborate in efficient ways by enhancing their skills regarding the use of technologies in an advanced way.

ACKNOWLEDGEMENTS

AduLeT has been funded with the support of the European Commission and co-funded by the Erasmus+ Programme of the European Union.



This project has been funded with support from the European Commission.
This web site 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.



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

REFERENCES

- [1] J. Lave; E. Wenger, *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press, 1991.
- [2] E. Wenger, *Communities of practice: Learning, meaning, and identity*. New York, NY: Cambridge University Press, 1998.
- [3] E. Wenger; R. McDermott; W.M. Snyder, *Cultivating Communities of Practice*. Harvard Business Press, 2002.
- [4] Adulet website, Advanced use of Learning Technologies in higher education, Accessed 01 May 2018. Retrieved from <https://www.adulet.eu>
- [5] Adulet CoP, The Adulet Community of Practice platform, Accessed 08 May 2018. Retrieved from <https://dev.adulet.eu>