Re-Imaging Learning Environments
Proceedings of the European Distance and E-Learning Network 2016 Annual Conference
Budapest, 14-17 June, 2016
ISBN 978-615-5511-10-3
ISSN: 2707-2819
doi: https://doi.org/10.38069/edenconf-2016-ac-0031

BUILDING TOGETHER EFFICIENT, TARGETED AND LONG-LASTING E-TRAINING: EXPERIENCE FEEDBACK FROM THE UTOP PROJECT

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Introduction

The question of continuing education and lifelong learning is central in our society, where traditional jobs evolve and require new skills, and where new jobs continuously appear. According to *Beyond Knowledge* publication of CEGOS (www.cegos.fr) in June 2015, it's difficult for the continuing education in Europe to be a strategic priority in companies, with the exception of the United-Kingdom. Distance training increases even in France where its proportion is low compared to Germany, Italy, Spain and United-Kingdom (between 25-30%). In France, the public higher education institutions hold only a few percentage of the FC market (6-7%).

This crucial field of professional development is most of the time not really well developed within our universities, and there is no dedicated place to make companies and universities working proactively and reactively together. It is the reason why the French Digital Thematic University called UNIT (Université Numérique en Ingénierie et Technologie) decides to launch a big initiative called Utop, that has been supported by the France PIA 2 IDEFI program. The main objective of this project is to create a kind of marketplace where companies, whatever their size, can ask for a specific education plan, where universities can collaboratively design an answer to this demand, and where users can find an indexed catalogue of all the available online curricula or modules.

This paper aims at describing in a first section the Utop, project and its objectives; the second section is dedicated to the way it has been implemented. The third section deals with some feedbacks from the first realisations of the Utop project, before a conclusion on how this new environment participates to the design of a new answer to the growing demand on lifelong learning, vocational development and re-qualifying education.

The uTOP initiative

UNIT (Université Numérique en Ingéniérie et Technologie: www.unit.eu) is one of the 8 French Thematic Digital Universities (TDUs) supported by the French Ministry of Education, Higher Education and Research. The TDUs are networks of universities and engineering schools working collaboratively to create a national high-quality educational resource bank for the whole university community (academics and students). TDUs are organised by

disciplinary fields and UNIT is the TDU dedicated to Engineering and Technology. UNIT is a Foundation open to all public and private actors of HE in Sciences and Technologies who agree that it is more efficient and rational to mutualise and to share knowledge and projects, and look together for co-financing system in the field of the digital for education.

In 2011 UNIT, in line with its members, decided to tackle the challenge of developing a focused and balanced approach to support the collaboration of companies and universities for the establishment of a coherent and high quality online offer. Therefore UNIT designed a new initiative called Utop. The uTOP project is one of the winners of the *Investment for future program*, IDEFI (Initiatives d'excellence en formations innovantes), launched in 2011 by the French National Research Agency (http://www.agence-nationale-recherche.fr/en/project-based-funding-to-advance-french-research/). This call for projects, aimed at supporting symbolic and innovative projects regarding higher education.

The *IDEFI uTOP project* is a *multi-partners* project which federates around UNIT its 60 members. This network is composed of actors in digital education such as CNAM (National Conservatory of Arts and Crafts), on-line IUT (University Institute Of Technology), Universities and Engineering schools (Telecom Institute, Telecom Lille, Écoles des Mines, ENPC (French National School Of Civil Engineering), ENSG, Universities of Valenciennes and Lorraine), research actors in Robotics (INRIA, GDR) and companies (Orange, Aldebaran, Géoconcept). uTOP works as a *marketplace*. It is a hub, a place of confluence between training demand and supply, organizing *multi-partners* projects. The uTOP project aims at building an offer of long life trainings on a model, adapted to the French context, of open digital university, addressing the national and international market, first and foremost the Francophony. Its purpose is to become a *bridge* between higher education, business and research worlds.

The *IDEFI uTOP project* can be viewed as a demonstrator, over 5 years, of an open digital university of technology.

Furthermore, by developing new partnerships, uTOP is able to create distance training answering needs for various branches of industry as aeronautics, rail, sustainable development, biomimicry, building information modelling (BIM), surgery, IT security, etc.

uTOP proposes modular, customizable and business-oriented distance training in addition to the long life trainings already proposed by its partners. The main goal is answering, in a cooperative way, to the requests of companies and the evolution of the job market.

Actions aiming at the sustainability of the uTOP project are in progress to develop, after market studies, an ambitious offer of scientific and technical trainings. The objective is to maintain the search for additional public and private partnerships, and to create a long-lasting structure beyond the project IDEFI. uTOP project is widely opened on the international, first and foremost the countries of the South.

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uTOP implementation

uTOP project confirms the concept of *multi-partners digital open university* around:

- three sub-projects of experimental distance training associating economic and territorial players:
  - trainings valuing the results of the research in computing and robotics fields,
  - trainings for the economic revitalization of a territory,
  - broadcasting of distance trainings in the Geomatics field at the national and international levels;
- open projects, in response to required specification:
  - digital and innovative co building training,
  - in response to demonstrated and identified needs,
  - economically viable.

UNIT Foundation provides governance, coordination and sustainability. A Steering Committee defines the strategy and checks achievement of objectives. It is based on an executive committee to operationalize the strategy, accountable to the Steering Committee and coordinate project teams. The selection process for the trainings to develop is based on a call system supply and a selection committee.

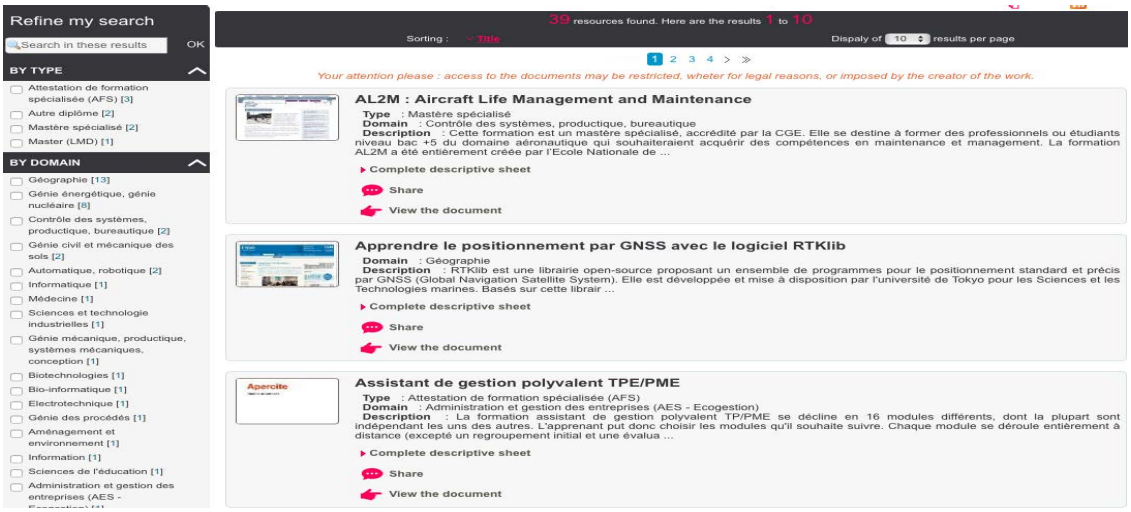

Figure 15. Example of trainings indexed on uTOP portal http://www.utop.fr

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Feedback from the Utop project

INRIA MOOCs experience

INRIA (www.inria.fr/en) created a MOOClab, designed to develop MOOCs to facilitate transmission between basic research and industry. In this framework, four MOOCs were realized by the MOOClab with the support of Utop and co-funded by INRIA and Utop. These four MOOCs are broadcasted on the French national MOOC platform called FUN-MOOC (France Université Numérique: www.fun-mooc.fr) in 2015:

- Semantic Web and Web of data;
- Biocomputing: algorithms and genomes;
- Binaural Hearing for Robots;
- Mobile Robots and Autonomous Vehicles.

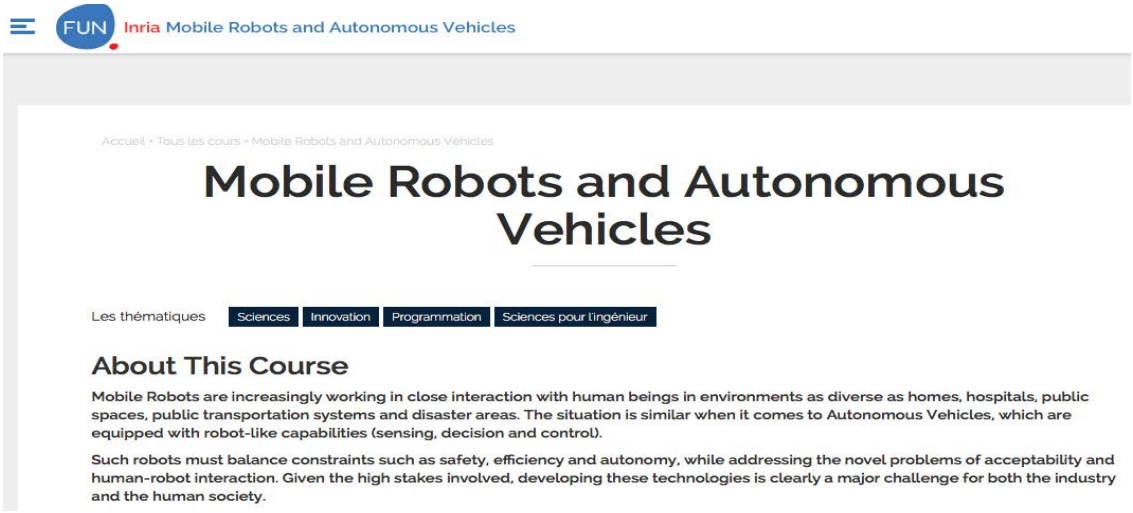

Figure 2. Example of a MOOC indexed on uTOP portal and broadcasted on FUN https://www.fun-mooc.fr

For the two first MOOCs (Semantic Web and Web of data, biocomputing), developed in French language, for learners with a Licence (L) or Master 1 degree, a rough analysis shows in particular:

- between 3,500 and 4,000 subscribers;
- in Biocomputing: approximately 500 were up to the end and obtained a certificate;
- 2/3 of learners are French;
- 1/3 of learners are from foreign countries, mainly from Maghreb, Senegal and Ivory Coast;
- there was a strong participation in quiz and forums.

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The two other MOOCs, about robots, are developed in English, for learners with a Master2 degree, and are dedicated to sharper problems:

- between 1,000 and 1,800 subscribers;
- Respectively 75 and 89 learners were up to the end and obtained a certificate (between 5 and 8%);
- 1/2 of learners are from Germany, India and United States;
- 1/3 of learners are from Maghreb, Senegal and Ivory Coast.

uTOP project gave INRIA the opportunity to work on valuing the results of the research in computing and robotics fields, especially for companies. Furthermore, iuTOP helps INRIA to attract students to the research sector, helping them to discover this not very well know universe and the careers opportunities attached.

Trainer's training

Between 2014 and 2015, a workgroup finalized the distance training *Discovery of e-learning* and organized a personalized training for future tutors. Finalization of the distance training took the form of several significant actions:

- Production of training resources and teaching aids (video, animations, MCQ, etc.);
- Integration of 2 training courses and specific tools on a Moodle platform;
- Elaboration of a guide and measurement tools for a test remote training course;
- Animation and evaluation of training plan in life-size test with a group of about ten participants;
- After the test, correction and adjustment of the training plan.

The training, given in French, is now open on the uTOP website (http://www.utop.fr).

Relationship with private sector and industry

The variety and the diversity of the uTOP actions put its academic members in training relationships with several companies as:

- POMA, which is an 80 year-old world leader in ropeway transportation, with subsidiaries on five continents (www.poma.net/en/);
- Rail companies and competitiveness poles (grouping of companies, Universities and Research centre);
- Civil aviation, Airbus SAS and Aviation Institute of Maintenance;
- Biomimicry, with the first European Excellence Centre dedicated to Biomimicry, CEEBIOS (Centre Européen d'Excellence en Biomimétisme de Senlis). "The project is ambitious and innovative: build a unique place, recognized and renowned for the promotion and development of biomimicry as a tool for scientific and societal transition at the international level" cf. Website – www.en.ceebios.com);

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- "Building Information Modeling" with Bouygues, Eiffage and Vinci and Architects. The main actors of French, and international, building construction are involved in the co-construction of the Master's degree, which was created in their request.

All these initiatives bring answers for skills evolution of companies' employees. Without uTOP and its multi-partner approach of co-construction and collaboration, these actions would not have been able to be started.

Conclusion

The uTOP project has realized its main objectives and can be considered as a real success thanks to:

- 39 courses and over 2,500 hours;
- 26 internal partners for a common goal and mobilization of over 100 external partners in a multi-partnership approach.

The uTOP project is now an actor located bridging the gap between business and higher education institutions, in the field on online education. In a relatively short time, it succeeds in developing a framework for the facilitation of the collaboration, the promotion of online curricula. The uTOP project supports and funds the development of several online training, some are open and free for the learners (such as the ' MOOCs previously described) and some others not, some are very short (4 weeks) and some much longer (9 months for master degrees).

Above all, uTOP supports his partners in the implementation of long-lasting economic models in distance training. The creation of profitable trainings allows a return on investment towards uTOP and thus to develop new projects, in services of individuals, companies and economic world.

This initiative should not be limited to France. Next step for uTOP is to extend this approach to future partners in Europe and all over the world.

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