MALTA 2017: TOWARDS A PROSUMER MOLECULAR E_LEARNING STRATEGY

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Abstract
In this paper, the progress of the roadmap for the implementation of the ECHEMTEST+ project going to be discussed at the General Assembly of the European Chemistry Thematic Network (ECTN) Association in Malta (April 1-4, 2017) is sketched and the adoption of its basic "prosumer" strategy is analyzed.

Introduction

The European Open Science initiative is a potentially revolutionary approach to discovery and innovation through scientific research and knowledge dissemination to all levels of the society. This is also a mission of ECTN (European Chemistry Thematic Network) Association. Open educational resources can be seen, in fact, not only as cultural guidelines but are also implementable as strategic measures in higher education institutions (HEIs). In particular, the ECTN Virtual Education Community (VEC) Standing Committee (SC) targets accessibility and valorisation of Molecular Science knowledge at all levels (though in particular at the higher education Institutions one) of education. For this purpose two specific projects have been developed: ECHEMTEST$^+$ and GLOREP. In ECHEMTEST$^+$ leverage is made both on EChemTest® (a set of libraries of Questions and Answers (Q&A)s on Chemistry knowledge at school, bachelor and master level) and on an e-test infrastructure (a Europe wide set of National Test Centres (NTC)s and Accredited Test Sites (ATS) supporting the carrying out the EChemTest® Self Evaluations Sessions (SES)s) to share and harmonize the European Molecular Science knowledge base. In GLOREP leverage is made on a set of servers bearing a content Management System and connected on the network supporting the shared access, search, download, editing and addition of Molecular Science Learning Objects.

The computer structures involved in the project are: Vienna (A), Thessaloniki (GR), Budapest (HU), Krakow (PL), Helsinki (FI), Madrid (ES), Perugia (IT), Milan (IT), Genoa (IT), Naples (IT), Kazan (RU), and Amsterdam (NL). Support is given also by the Master-UP s.r.l, Krebs Inc, eXact Lab srl and Polymechanon acting at the European level as a cluster (DRAG) operating under the umbrella organization of ECTN.
As will be discussed at the General Assembly, in the past EChemTest® has exclusively relied on a network of NTCs distributed over the various EU countries in which related SESs were administered using the Perception software of the QM (Question Mark) company with a license limited to 10 TCs and restricted to academic use. These limitations prompted the development of the ECHEMTEST$^+$ project aiming at building sustainability out of an extra investment of 25 keur deliberated by the ECTN AC. As mentioned above (see also the paper Strategic Integration of Open Educational Resources by Sandra Schaffert (U. –D. Ehlers and D. Schneckenberg Eds, Changing Cultures in Higher Education, Springer-Verlach Berlin Heidelberg 2010, p 119-131, Springer-Verlach Berlin Heidelberg 2010, DOI 10.1007/978-3-642-03582-1_11) open educational resources can be seen as strategic measures. On this ground the VEC SC is structuring ECHEMTEST$^+$ by adopting the prosumer (producer-consumer) model advocating a strongly proactive role of the HEIs members of ECTN through their TCs.

The ECHEMTEST$^+$ roadmap

The implementation of the new model was first discussed during at the 2016 ECTN General Assembly held in Gdansk. The related roadmap reads as follows:
 24 APRIL: ECHEMTEST$^+$ roadmap approved in Gdansk;
 1 AUGUST (19 days before deadline): recovery of the correct Q&As of the various libraries   completed;
 11 SEPTEMBER: (9 days before deadline) Recovery and porting of the correct Q&As of the various libraries completed;
 15-16 SEPT: (30 days before deadline) first planned EOL training events carried out with 13 attendees (R. Tesser, M. Ceotto, F. Mavelli, R. Jurij, M. Rui, J. Laurent, K. Wahala, K. Kovacs, E. Koliarmou, I. Kozaris, K. Szczeponek, H. Krebs, R. Selvaggi) and the support of O. Gervasi, A. Laganà, N. Faginas Lago, C. Manuali, S. Tasso, D. Perri, R. Gai from the Perugia team;
 16 SEPT: open meeting of the VEC SC with discussion on EChemTest marks, proficiency certificates and "fees and compensation rules" on solutions proposed by the ECTN AC;
 22 SEPT: (23 days before deadline) MILAN first test (4 libraries, 140 people) performed using EOL. The session had problems for the collection of the results (*solved SEPT 28*);
 1-11 OCT: WRITING the report to the ECTN AC of OCT 14 (Brussels) on the accomplishments of the roadmap and planning next steps;
 1 NOV: START of the new ECHEMTEST$^+$ regime and individual certificates;
18 JAN 2017: ECTN AC approval of "fees and compensation rules for EChemTest services";
 31 JAN 2017: The ECTN-EOL connection (CHEM-learn) portal design started by Master-UP;
 23 MARCH 2017: Master-UP skype meeting for the ECTN web page links.

For the coming 2017 ECTN General Assembly to be held in Malta starting from April 1 the remainder of the roadmap reads as:

  1 APR: in Malta the **VEC** shall discuss its 2017 roadmap and its implementation;
  2 APR: in Malta the **ECTN AC** shall discuss the VEC 2017 roadmap and its implementation;
  3 APR: in Malta Test Center (TC) managers meeting and EOL, GLOREP training events;
  JUN: first operative version of the ECTN-EOL connection portal;
  SEPT: Meeting and Finalization of the ECTN-EOL portal;
  SEPT: Meeting for the design of **TEM** (Training to EOL Management) as a service;
  DEC: ECHEMTEST+ TC managers meeting: Mid term evaluation and corrective actions.
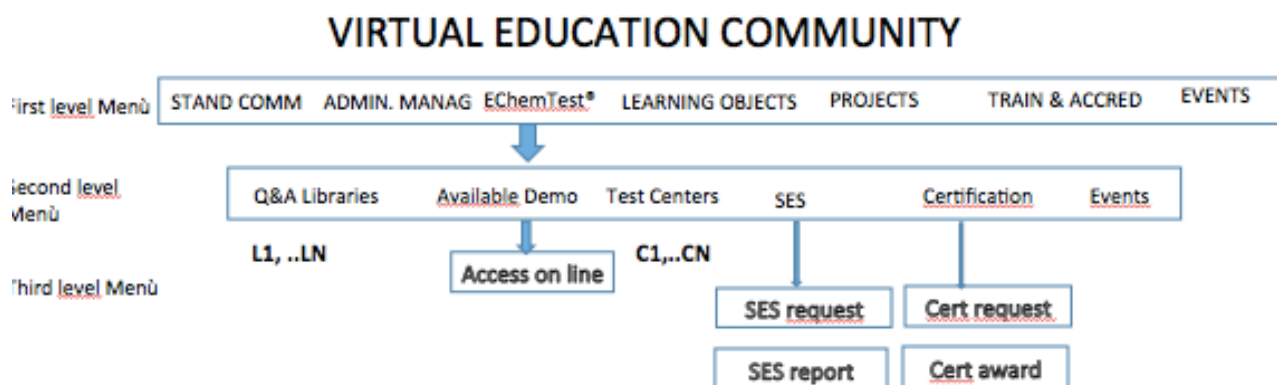
The actions to be taken

The actions proposed in the last part of the roadmap imply that NTCs, ATSs and Agencies sign an ad hoc Memorandum of Understanding (MoU) (Contract for the Agencies), accept the ECTN code of conduct, cooperate in maintaining (correcting and updating) the existing Q&A libraries (eg. Inorg. Chem., Chem. Eng., Comp. Chem.), in developing new libraries (eg. Chemistry everyday life, Molecular cuisine, other professional subjects), in promoting and advertising public initiatives like the national contests, in providing contributions to the e-magazine "VIRT&L-COMM" and populating distributed repositories with Learning Objects.

Because of this the ECTN Association will set aside a budget of 25 keur in addition to the regular annual budget of the VEC devoted to cover the expenses for the VEC meeetings, to pay for the costs of the Cloud, cover the expenses for the first 100 EChemTest SESs of the HEIs running a TC.

Furthermore, the functionalities of the ECTN web site will be adapted, as shown in the third level of the scheme below, to link an ECTN-EOL portal (called CHEM-learn) taking care of providing

  a. access the Demo sessions,
  b. SESs' requests and reports,
  c. Proficiency certificates requests and awards.

The key features of the three links are:

  DEMO: at present *the users access ECTN-EOL portal to download demo tests*; in future an on line procedure will be activated to run a real DEMO SES)

  SES: **1.** *the TC manager (acting as EXAMINER) can issue a request to EOL under the condition of being authorized by ECTN*
2. *EOL acknowledges the request and enables the EXAMINER to set the requested SESs*
3. *Students attend the SES*
4. *the EXAMINER validates the results and elaborates the report*

  Certification and TC reward: 1. *The certificate is sent to the student after payment is recieved*
2. *Information on the (virtual) credits/debts associated with the work done and/or the services requested are sent to the EXAMINER's TC.*

During the General Assembly and related activities of the Administrative Council, Standing Committees and Working Groups further elaboration will be made for the ECTN-EOL connection portal, on the mechanisms of the prosumer methodology, on the on-line training events, on the tasks to be assigned to the TC managers and on the mid term evaluation parameters and requested corrective actions.