An Adaptive Trust-based e-assessment System for Learning

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Content

• (e) Learning & (e) Assessment
• Problem not solved
• TeSLA project
• Role & Work cycle of QA
• Report up to now
(e)Learning

✓ The teaching and learning process is conducted (totally or partially) through the net

✓ **Wide range** of LMS & VLE

✓ Use of **ICT tools** and resources

✓ Teacher as a **facilitator**

✓ Learner: **autonomous,** responsible, **(pro)active.**

✓ E-assessment processes

✓ Personalised and continuous feedback
E-assessment is a continuous electronic assessment process where information and communication technology (ICT) is used to present, solve, record and evaluate assessment activities (Crisp, 2007).

- Summative, continuous and formative assessment models coexist.

- Activities easy to correct or automatic correction is proliferating (i.e. tests, multiple choice exams).

- Continuous assessment is combined with final exams.

- Blended/Online universities maintain on-site final exams. It is considered the most reliable way to verify students' identity.
Unsolved in blended/online learning: Authentication and Authorship

Challenge for a trusted e-assessment
Crime Scene

Final examination

Trad copy

Question 1
Name: Maria OK!
Traditional exam/assessable activity [unlimited_imagination]
Traditional exam/assessable activity [solution]

Solution???
We need a real solution

- Flexible system that supports diverse assessable learning activities and assessment models (mostly on CA).

- A system that verifies the identity of students (authentication & authorship) and prevents from illegitimate behaviours (i.e. cheating, plagiarism)

- A scalable solution (that can be massively deployed), not invasive (no privacy issues) and reliable

Security measures can promote trust (among teachers, students, institution) increasing the assessment quality and the final certification.
An Adaptive Trust-based e-assessment System for Learning

TeSLA
Adaptive trust-based e-assessment

Horizon2020 – INFORMATION AND COMMUNICATION TECHNOLOGIES
Topic: Technologies for better human learning and teaching.
Type: Innovation Action, with Large Scale Pilots.
Consortium

18 Partners (130 pax involved)

8 Universities  3 Quality Agencies  4 Research Centers  3 Enterprises
Main objective

To define and develop an e-assessment system, which ensures learners authentication and authorship in online and blended learning environments while avoiding the time and physical space limitations imposed by face-to-face examination.

The TeSLA project will cover teaching and learning processes as well as quality, ethical, legal and technological aspects.
Some specific objectives

O1. Analyse and design the most appropriate learning activities for e-assessment.

O2. To introduce tools and resources in the learning activities that capture learners’ data.

O3. Conduct several pilots for ensuring the authentication and authorship of the learners during the e-assessment processes.

**Tools and resources in TeSLA system**

**Authentication:** digital certificate, face recognition, keystroke dynamics, voice recognition, time stamp.

**Authorship:** plagiarism tool and forensic analysis (linguistic techniques comparing creations from the same user and with Internet sources).
Work Packages

WP 1. Project Management (UOC).
WP 2. Requirements and modeling of the educational model (UOC).
WP 3. Data privacy and ethics (Namur).
**WP 4. Quality assurance in online higher education (AQU + ENQA + EQANIE).**
WP 5. Design and implementation of trusted assessment mechanisms (Lplus).
WP 6. Integration of the framework in learning environments (Watchful).
WP 7. Design and development of pilots (SU).
WP 8. Pilots evaluation (OU).
WP 9. Communication, dissemination, liaisons and exploitation (protOS).
WP 4. Quality assurance in online higher education

✓ Analyse the European Standards and Guidelines (ESG) taking into account the characteristics of online provision of educational offers by institutions and degree programmes.

✓ Identification of the elements to be considered in the system, in terms of academic activities, competence evaluation, assessment models and the guarantees provided by technological systems.

✓ Propose a set of quality indicators that will be used to assess the performance and achievements in the pilots and verify the quality aspects of the pilots.

✓ Define a framework for quality assurance for e-assessment.
QUALITY PILARS TO TeSLA PROJECT

METHODOLOGY  EXPERTS  PROCESS  IMPROVEMENT
WP4. Current status

METHODOLOGY

D 4.1
ESG
Online teaching and learning perspective

D 4.2
Quality indicators
Technological point of view

D 4.3
Quality indicators
Quality cycle in the project

TeSLA Framework

Institutions
- WP3: Data privacy and ethics
- WP5/WP6: Trusted assessment tools
- WP7: Design and development of pilots
- WP8: Pilots evaluation

EVIDENCES

ASSESSMENT METHODOLOGY
- D4.2
- D4.3

Recommendations
- Institutions
- WP4 (Metaevaluation)
- Other WP

Final report

Head panel

Regular panels

Reports
Improvement

1st Pilot
Small educational pilots

2nd Pilot
Medium test-bed pilots

3rd Pilot
Large scale pilots

2015
3 years
2016
2017
2018
TeSLA
Trust system for e-assessment.

ADAPTATION
Educational institutions.
Different e-assessment models.

How to do it?
Tailored to:
- Learning platforms.
- Teaching and learning models.
- Scalability.

QUALITY
Establish quality criteria for an e-assessment framework.
Audit and advise on Higher Education quality.
Respect ethics and cultural factors.

How to do it?
Ensuring quality through:
- Quality agencies.
- European Expert advisors.
- Large scale pilot tests.

PRIVACY
Protect users and institutional data respecting European and national legislation.

How to do it?
Applying privacy within:
- Educational Institutions.
- Teachers.
- Stakeholders.

INNOVATION
Transfer technologies from other fields to education.
Apply learning analytics for e-assessment.

How to do it?
Enhancing:
- Teaching and learning processes.
- e-assessment models.
- Technologies from several disciplines.

TRUST
Ensure:
- Authorship.
- Authentication.

How to do it?
Using technologies:
- Keystroke dynamics.
- Voice and facial recognition.
- Natural language analysis.
- Digital signature.
- Time stamp.

TeSLA
Adaptive trust-based e-assessment
Up to now

**Educational**
- Educational framework
- E-assessment patterns
- Pedagogical technical requirements
- SEND, Accessibility

**Privacy/ethics**
- Data Management Plan
- FAQS and Roadmaps
- Consent form
- Data Processing Agreement, Data sharing

**Quality**
- Quality indicators: pilots’ evaluation
- Head + regular panels of experts
- 1st Metaevaluation Report (ongoing)

**Technical**
- Technical specifications (tools, plugins, security techniques)
- Transferability to a standardised model
- Isolated instruments
- 1st TeSLA system

**Pilots’ design**
- Common Protocol, PDB, Diagrams
- Pilot 1 finished (637 learners)
- Execution report
- Pilot 2 running

**Pilots’ evaluation**
- Evaluation measures
- Questionnaires design, execution and report
- Focus groups design, execution and report

**Communication Dissemination**
- Web/blog/social media
- Conferences
- Events/Press
- Newsletter
- Third parties
Thank you!

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