An Adaptive Trust-based e-assessment System for Learning

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Introduction

- Instructional design (innovation).
- E-assessment (authorship and authentication).
- Experts with experience in e-learning.
Questions…

ACADEMIC INTEGRITY & TRUST

Need
Resolve the gap
In the current online evaluation system

E-learning provision is becoming more widespread in the EHEA

There is not a European framework on e-assessment

The concept of quality in e-learning is as complex as the reality of e-learning itself

There is a lack of technologies to support authorship and authentication
traditional exam/assessable activity - 2 [solution_1]
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.
Consortium

18 Partners

8 Universities  3 QA bodies  4 Research Centers  3 Enterprises

http://tesla-project.eu/
TeSLA instruments

**DOCUMENT ANALYSIS**
Involves the analysis of written material using a qualitative analysis package that describes discourse and its interpretation

- **Plagiarism tools**
  - Analyses written material and detects similarities among various written documents

- **Forensic analysis**
  - Determines the authorship verification and authorship attribution of written documents based on the comparison of current documents with stored data

**BIOMETRICS**
Allow the clear identification of humans based on some specific physical characteristics or special behaviour

- **Facial recognition**
  - Analyses facial expressions in two stages: facial detection and recognition

- **Voice recognition**
  - State-of-the-art audio description method. Speaker segmentation and cluster grouping

- **Keystroke dynamics**
  - Measures how the user writes in regards to pressure and time-based measuring

**SECURITY TECHNIQUES**
Deploy a security service provided by a layer of communicating systems

- **Timestamp**
  - Generates a sequence of encoded information identifying when an event is recorded

- **Digital signature**
  - Guarantees the authenticity of a digital message or document by a mathematical scheme
TeSLA as a whole

**Student**

Student completes the assessment as he/she would normally do. TeSLA may require input/interaction during the learning activity or examination to be able to complete continuous analysis around identity and authorship during the test.

**Analysis and value**

TeSLA system will provide a report of assurance about authenticity and authorship together with the assessment responses.

https://vimeo.com/216644862
Pilot execution form
How it works in real VLEs: consent form

Student who has not signed the informed consent
How it works in real VLEs: enrolment

Student with completed enrolment
How it works in real VLEs

Student without completed enrolment
Perform an Activity (Learner)

How it works in real VLEs: follow up activities

TeSLA
Adaptive text-based e-assessment

Dashboard
Site home
Calendar
Private files
My courses
demo

Face Recognition
Voice Recognition

100%
100%
100%
100%
View Result Details (Instructor)

Student TeSLA results

Audit data
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).
ESG (2015)

PART 1. INTERNAL QUALITY ASSURANCE
Development of internal quality assurance elements

PART 2. EXTERNAL QUALITY ASSURANCE
Design of the external review methodology for the pilots

PART 3. QUALITY ASSURANCE AGENCIES

Same standards for HEI (face to face or online)
ASSESSMENT METHODOLOGY

1. Policies, structures, processes and resources for QA of e-assessment.
2. Assessment of learning.
3. E-assessment system security, capacity and authenticity.
4. Infrastructure and resources.
5. Student support.
6. Teaching staff.
7. Learning analytics.

STANDARDS

INDICATORS

EVIDENCES
1. POLICIES, STRUCTURES, PROCESSES AND RESOURCES FOR QA OF E-ASSESSMENT

The institution has appropriate policies, structures, processes and resources to ensure that e-assessment is timely and fair, and it includes ethical and legal considerations. Besides, the proposal for the e-assessment is aligned with the pedagogical model of the institution and ensures the constant achievement of its objectives.

Main aspects:

- Organisation and protection against academic fraud
- Accessibility to students with special educational needs
- Adoption of new technologies to ensure the expected quality of e-assessment
- Technical support
- Electronic security measures
- Alignment with educational objectives and pedagogical models
- QA procedures for external partners

2. ASSESSMENT OF LEARNING

E-assessment methods are varied, facilitate pedagogical innovation and determine rigorously the level of achievement of learning outcomes. They are consistent with course activities and resources and adapt to the diversity of learners and educational models.

Main aspects:

- Informed and consistently applied
- Reflect innovative pedagogical practices
- Encourage the use of a variety of assessment methods
- Understand the diversity of learners
- Learning feedback is timely given to students
- Satisfaction procedures and student appeals processes
3. E-ASSESSMENT SYSTEM SECURITY, CAPACITY AND AUTHENTICITY

The development and implementation of the e-assessment include protective measures that guarantee learner authentication and work authorship. The e-assessment system is secure and fit for purpose.

Main aspects:

All-inclusive fail-safe technology development plan for:

- Technologies, data protection and privacy requirements
- Building and maintenance of the infrastructure and processes for the ongoing review of technologies
- Ensure the operability and security against external attacks

Code of conduct on academic integrity, including sanctions and good practice

4. INFRASTRUCTURE AND RESOURCES

The institution utilises the appropriate technologies that match the course content in order to enhance and expand learning for all types of students’ needs.

Main aspects:

- Ease of use for all students
- Consider ethical and legal aspects
- Constant update in light of technological changes
- Support of a variety of methods and tools
- Sufficiently tested prior to its use
- Ensure coverage and the setup of the required technical system
- Accessible for SEND students
5. STUDENT SUPPORT

Students are aware, have access and use effective and well-resourced support services for counselling, orientation, tutoring and facilitation in order to increase retention and success. Student support covers pedagogical, technological and administrative related needs and is part of institutional policies and strategies.

Main aspects:

- Student support policies
- Access to timely and adequate support services
- Satisfaction procedures with student support

6. TEACHING STAFF

The teaching staff is skilled and well-supported in relation to technological and pedagogical requirements and e-assessment methods.

Main aspects:

- Teaching staff is trained and proficient
- Procedures to identify the support requirements of the teaching staff
- Adequate, accessible and timely technical and pedagogical support services
- Satisfaction procedures
7. Learning Analytics

The institution has an information management system that enables agile, complete and representative collection of data and indicators derived from all aspects related to e-assessment methodology and authenticity and authorship technologies.

Main aspects:

- The institution collects, analyses and uses relevant information from stakeholders for the effective management of the e-assessment methodology

8. Public Information

The institution appropriately informs all stakeholders of pedagogical development, the e-assessment method, and resources technology. The institution publishes reliable, complete and up to date information on pedagogical methods and technical support. Students should be made aware of the hardware requirements and learning resources technology and technical support.

Main aspects:

- The institution publishes reliable, complete and updated information on e-assessment methods, students’ technical requirements and institutional technical support
QA PILLARS TO TESLA PROJECT

A) METHODOLOGY

B) EXPERTS

C) PROCESS

D) IMPROVEMENT

TeSLA Framework

Institutions

WP2: Educational framework
WP3: Data privacy and ethics
WP5/6: Trusted assessment tools
WP7: Design and development of pilots
WP8: Pilots evaluation

Pilot 1  Pilot 2  Pilot 3

D4.4  D4.5  D4.8

Recommendations
- Assessment methodology
- TeSLA pilots
- Institutions

EVIDENCES

ASSESSMENT METHODOLOGY

FINAL REPORT

HEAD PANEL

REPORTS

REGULAR PANELS
RESULTS

TeSLA - Adaptive Text-based e-assessment

1st Pilot: Small educational pilots
DONE

2nd Pilot: Medium test-bed pilots
DONE

3rd Pilot: Large scale pilots

Number of unique students who completed minimum requirements for each instrument:

- FA: 865
- VR: 893
- TPT: 951
- KS: 1,095
- FR: 2,634
STANDARDS

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SCENARIO: You are a reviewer of an imaginary HEI that uses TeSLA…

How? Collaborative activity (2-4 groups)

1. Main questions that could arise if you are a reviewer
2. What do you need to see? Evidences
3. What would you reject if TeSLA is implemented in a HEI?
4. Would you need to see how it works during the site visit?

Timing:

- 15’ to work in a collaborative way
- 15’ to present work performed and debate
CONCLUSIONS

- E-assessment system (TeSLA) can contribute to provide confidence to fully online and blended provision (formal or non-formal education).

- E-assessment system (TeSLA) can contribute to improve the perception of e-assessment (formal or non-formal education).

- E-assessment system (TeSLA) can contribute to reduce the number of diploma mills or with low reputation.

- TeSLA can contribute to enhance the quality assurance procedures focused on the teaching and learning process.
Thank you!

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