ePolls and evaluations

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Course evaluations at Greek Universities

• Performed under the supervision of the *Hellenic Quality Assurance and Accreditation Agency (HQAA)*

• At University level: *Quality Assurance Unit (QAU)*
  At department level: *Quality Assurance Team (QAT)*
  Both implement HQAA’s evaluation procedures.

• Courses are evaluated by the students that happen to be in class at a day chosen near the end of the semester.

• The students complete the questionnaires in class while the instructor and a QAT member wait outside.

• The QAT member is given the completed questionnaires in a sealed envelope by three student representatives.

• The QAT members do the same for each course and then give the questionnaires to the QAU for processing.
The Computer Engineering & Informatics Department (CEID) and the pilot

- Established in 1985
- 5-year computer engineering curriculum
- ~250 new students each year
- Co-located with CTI in the University of Patras campus
- Maintains close collaboration with CTI
- A compulsory course taught at CEID was selected for the pilot: *Distributed Systems* I, a 7th semester theoretical class which has already started):
  - 72 students were registered to the course.
  - 45 students volunteered to participate in the pilot.
  - 30 students volunteered to participate in the questionnaire-based evaluation of the pilot
The pilot’s goal and the students’ activities

- The goal of the pilot was to provide proof of concept for Privacy-ABCs in a remote course evaluation application in higher education.
- The students obtained credentials on smart cards before the semester began.
- During the semester, upon entering the lecture room they waved their smart cards in front of a contactless reader to obtain one more attendance unit.
- At the end of the semester, they visited the course evaluation system and prove, in order to be allowed to evaluate the course, the following without revealing their true identity:
  - are registered students of the department
  - have registered the course under evaluation
  - have attended the minimum required number of course lectures (setting this minimum to 0 allows all students to participate)
The pilot scenarios

1. University Enrollment
   Student ID = 6043344

2. Registration in Course
   Course = CS445

3. Attendance info

4. Student ID = ?
   Still Student = Yes
   Course = CS445
   Attended > 50%

5. Eligibility for Tombola

6. Participate in Tombola

Classroom

University (Issuer)

Student (User)

Tombola System (Verifier)

Course Evaluation System (Verifier & Issuer)
High Level Architecture / Patras Pilot

University Registration System
Issuer and Verifier
- ABCE
- IdM ABC System
- Smart Card Registrar
- IdM Admin GUI

IdM Application
- IdM

Revocation Authority
- ABCE
- Revocation Service

Course Evaluation System
Issuer and Verifier
- ABCE
- CES ABC System

IdM Portal
- IdM Mass Prov. Tool

Patras Portal

Tombola System
Verifier
- ABCE
- Tombola ABC System

Tombola Application

CTI's Premises

User
- ABCE
- User Application

Class Attendance System
- Class Attendance Application

Inspector
- ABCE Inspector Application
**Student Credentials**

1. **University Credential**  
   (Idemix)

2. **Course Credential**  
   (U-Prove)

3. **Tombola Credential**  
   (Idemix)

**credUniv (revocable):**
- First Name:
- Last Name:
- University Name:
- Department Name:
- **Matriculation Number:**

**credCourse:**
- Course Identifier:

**credTombola:**
- **Matriculation Number:**

*Carry-over attribute:*
<table>
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<tr>
<th>Stage of the Semester</th>
<th>Tasks</th>
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| **Beginning of the Semester**          | • Get Smart Card  
• Register Smart Card  
• Get a University Credential  
• Get a Course Registration Credential |
| **During the Semester**               | • Collect Class Attendance Evidence  
• Periodic Backup of Smart Card  
• Smart Card Restore in Case Needed |
| **In the end of the Semester**        | • Participate in the Course Evaluation  
• Obtain Tombola Credential (if so desired)  
• Participate in the draw to win a prize  
• Inspect the Tombola Credential to identify the winner  
• Revoke the University Credential, if necessary |
From the University Pilot Portal students can access the following:

- The University Registration Server in order to collect their credentials.

- The Course Evaluation Server in order to evaluate the target course.

- The required software for interacting with the systems.

- Instructions manual.
The entry to the pilot: The University Pilot Portal

- The University Pilot Portal is a web information and system access portal for the pilot (https://ces.cti.gr/Portal/Portal.html)
Now comes the demo!
Samples of evaluation Results

- **Usage feedback:**
  - For course evaluation: all 30
  - For Tombola: 26

- **Good results on usability (we list some selected factors):**
  - Ease of use
  - Interface usability
  - Ease of obtaining credentials
  - Ease of learning
  - Helpfulness of user manual
  - Helpfulness of the CTI team

- **Smart card usage & students’ concerns:**
  - Worried about losing the smart card: 6 out of 30
  - Feel uncomfortable about storing data on smartcard: 2
  - Used backup function: 12
Samples of evaluation Results

- **Importance of anonymity in Course Evaluations:**
  - All students agree on the importance

- **Willingness to use Privacy-ABCs in other scenarios:**
  - 80% of the students are willing to use this technology

- **Preference of Privacy Preserving Electronic Evaluations over paper-based ones:**
  - 93.3% prefer Electronic Evaluations with privacy mechanisms.

- **Perceived Anonymity and Privacy:**
  - Almost all students strongly felt a sense of anonymity and privacy protection by Privacy-ABCs.

- **Behavioral intention to use:**
  - Almost all students would like to continue using Privacy-ABCs-based evaluations.
Beyond the pilot

Today, CTI has a new role as a governmental educational agency and operates resting on four strong pillars:

1. Computer Technology Institute: new role in the Greek Education system
2. Greek School Network
3. eParticipation experiences
4. ABC4Trust

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Conclusions

• Students believe that benefits of using the system are bigger than the effort to use it.

• Almost all students would prefer using a Privacy-ABCs for course evaluations.

• Usability of the prototype:
  ▪ Good usability results, but: CS students are not average users while CTI team helped a lot!

• Next goal: promote the pilot system as an ePolling/eEvaluation instrument at all education levels.

• Long-term vision: enhance the system to support more privacy-related services for the Greek Schools Network.
Thank you!

www.abc4trust.eu

Questions?