Comprehensive Overview of AvalUAB: A Real-Time System for Collecting Medical Student Satisfaction.

AvalUAB is an innovative project[1] implemented by the Coordination Team of Germans Trias I Pujol Teaching Unit[2] which is part of the Faculty of Medicine at the *Universitat Autònoma de Barcelona* (UAB). It aims to gather and analyze real-time feedback from medical students through two web applications: AvalUAB-Students for evaluations and AvalUAB-Teachers for secure, instant access to feedback by professors and coordinators. Both applications are optimized for a wide range of internet-connected devices, with smartphones being the primary mode of access.

1. AvalUAB-Students

1.1 Description

AvalUAB-Students is an intuitive mobile application enabling students to provide immediate feedback on their learning activities using four smiley icons representing satisfaction levels (Figure 1a):

- Very Dissatisfied: a red icon with a very sad face, expressing strong dissatisfaction.
- Dissatisfied: an orange icon with a neutral face, showing mild dissatisfaction.
- Satisfied: a blue icon with a smiling face, showing contentment and satisfaction.
- Very Satisfied: a green icon with a smiling face and stars in the eyes, representing extreme satisfaction and delight.

The satisfaction query to be assessed is: "to evaluate of the level of satisfaction with the learning acquired in the teaching activity you have attended".

Upon submitting their evaluations, students can add an anonymous comment to explain their rating (Figure 2). These comments are instantly available to the respective professors and subject coordinators. Once a learning activity is evaluated, it disappears from the list, streamlining the evaluation process.

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[1] Authorship of new invention 'AvalUAB', UAB's registry number T-2022-015.
[2] Coordination Team formed by: D Parés, MD, PhD, Dr. E Martínez MD, PhD, and C Ramírez.

Figure 1a

Figure 1b

Figure 1a. AvalUAB Students: home page / satisfaction rating (menu collapsed)
Figure 1b. AvalUAB Students: home page / satisfaction rating (menu expanded)

Figure 2. AvalUAB Students: Comment field for explaining rating.

1.2 App Sections

- Learning activity evaluation (Home page): displays a list of completed activities for evaluation using the four emoticons (Figures 1a and 1b).
- Schedule: allows students to view upcoming learning activities and details on each one (time, duration, professor, subject, type) (Figures 3a and 3b).
- Statistics: provides an overview of feedback through pie charts and tables, illustrating the distribution of responses by satisfaction level and subject (Figures 4a and 4b).
- FAQ: answers common questions about the AvalUAB project and AvalUAB-Student usage.
- Installation: guides students on installing or reinstalling the app.
- Privacy and Terms of use

1.3 Summary and Key Features

- User-Friendly Interface: optimized design for mobile devices.
- The use of smiley icons is a creative way to engage students in providing feedback.
- Easy to install via a QR code shared by professors at the start of the academic year and the 'Add to Home Screen' feature on their smartphones to create a shortcut to the web application.
- Dedicated pages: each year course of medical studies, from the 3rd to the 6th year, has its dedicated page and link.
- Immediate Feedback: immediate evaluation submission after each learning activity.
- Anonymous Comments: encourages honest feedback while maintaining privacy.
- The configuration of the system restricts the possibility for the student to evaluate the same activity multiple times.
- Overall Statistics.
- Schedule Integration: view learning activities schedules and course information within the app.

Figure 3a

Figure 3b

Figure 3a. AvalUAB Students: schedule (global)
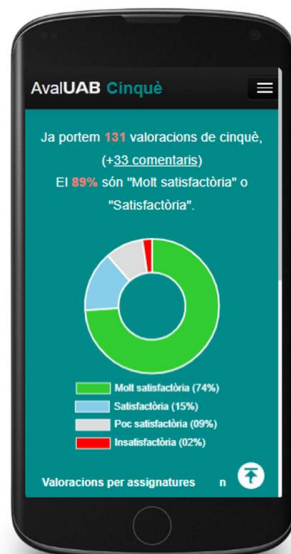
Figure 3b. AvalUAB Students: statistics (activity)

Figure 4a

Figure 4b

Figure 4a. AvalUAB Students: statistics (global)

Figure 4b. AvalUAB Students: statistics (by subject)

2. AvalUAB-Teachers

2.1 Description

AvalUAB-Teachers is a web application designed for professors to access and review real-time feedback from medical students about their teaching. Feedback, including satisfaction levels represented by four emoticons and anonymous comments, is available through a personalized URL, ensuring secure and individualized data access.

2.2 App Sections

- Home Page: provides direct links to key sections within the app (Figure 5).
- Subject Feedback Statistics: this section provides aggregated feedback for all subjects in which the professor has completed at least one learning activity. Subject coordinators have access to additional data, including comments directed to any teacher of the subject they oversee (Figures 6a and 6b).
- Latest Course Feedback: displays feedback from the most recent learning activity taught by the professor (Figures 6c, 6d and 6e).
- Teaching Unit Feedback Statistics: presents overall feedback statistics for the entire teaching unit (Figure 7).
- FAQ: answers common questions about the AvalUAB project and AvalUAB-Teachers usage.
- Privacy and Terms of Use: outlines the application's privacy policy and terms of service.

2.3 Summary and Key Features

- User-Friendly Interface: designed with an intuitive layout optimized for mobile devices, ensuring ease of use.
- Simple Installation: professors can install the application on their mobile devices in two easy steps: first, complete a quick form to automatically receive a personalized URL; then, after accessing this URL, use the 'Add to Home Screen' feature on their smartphones to create a shortcut to the web application.
- Secure and personalized access to data via a unique URL that includes an encrypted ID.
- Advanced Data Presentation: offers multiple options for grouping and filtering data, allowing professors to analyze feedback by day, course type, semester, or subject (for those teaching multiple subjects)
- Smart Reporting Features: professors and coordinators can print or download PDF reports (with filtering options) of the teaching activity.

● Schedule Integration: professors can view and manage their scheduled courses within the application, facilitating efficient organization of teaching activities. Coordinators can also oversee and manage the course schedules for all professors within their subjects.

Figure 5: AvalUAB Teachers: home page

Figure 6a
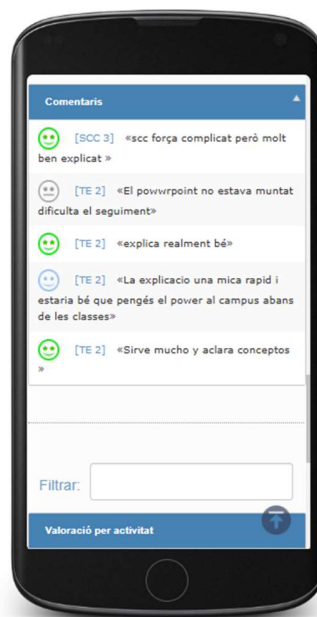

Figure 6b

Figure 6c

Figure 6d

Figure 6e

Figures 6a and 6b. AvalUAB Teachers: statistics (subject)
Figure 6c. AvalUAB Teachers: statistics (teacher)
Figure 6d. AvalUAB Teachers: statistics (learning activity)
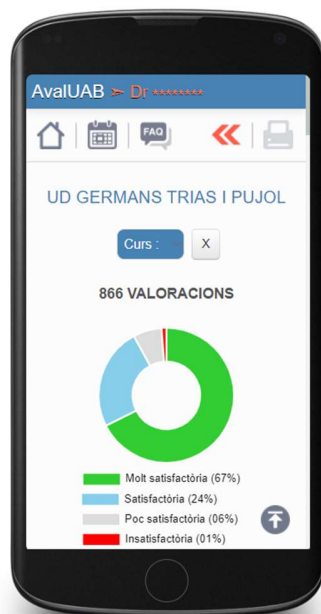Figure 6e. AvalUAB Teachers: statistics (comments)

Figure 7. AvalUAB Teachers: statistics Teaching Unit

3. Technical background

The AvalUAB system is installed on a server within the uab.cat domain and maintained by UAB staff from the *Servei d'Informàtica Distribuïda de Medicina*,[3] ensuring regular functional and security updates. In addition to system super-administrators from this IT department, the AvalUAB system defines several user roles, each with specific permissions: administrators from the Teaching Unit, subject coordinators, teachers (excluding coordinators), and students.

AvalUAB's database is hosted on a dedicated instance of LimeSurvey (Community Edition),[4] a reliable and versatile open-source survey management software. Scheduled teaching activities are imported as tokens linked to a questionnaire that includes satisfaction rating scales and comment questions. LimeSurvey allows AvalUAB administrators to easily manage data and perform a wide range of actions through the software's administration interface. They can, for instance, edit or add courses, access additional statistical data, export results, or generate reports. The AvalUAB-Students and AvalUAB-Teachers applications are PHP-based web applications that integrate multiple open-source components, such as jQuery, Bootstrap, DataTables, and Chart.js.

4. Conclusion and perspectives

AvalUAB is a valuable tool for medical schools, offering students an easy and anonymous way to share their opinions, while giving professors immediate access to feedback and in-depth analytics. AvalUAB project was implemented at the Germans Trias I Pujol Teaching Unit during the academic year 2022-2023. This initial implementation, still in use, serves as a pilot to assess the system's effectiveness. Currently, the UAB is evaluating the potential scalability of AvalUAB to other teaching units within the Faculty of Medicine. This assessment includes examining the system's adaptability, technical requirements, and resource needs to ensure successful generalized implementation.

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[3] D Jiménez is the IT specialist who has carried out the technical installations.
[4] LimeSurvey GmbH. n.d. "LimeSurvey: An Open Source Survey Tool." Accessed 2024-10-06.
https://community.limesurvey.org/

About this document

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Redaction notes: Originally written in Catalan, this document has been translated and refined using the Meta Llama 3.1 Instruct AIG model.