# Evaluation Techniques and Usability Testing

## Subject Presentation

## DIEI

**Montserrat Sendín** (Course 2022/23)

# Teacher

**Montserrat Sendín**

Email: [montse.sendin@udl.cat](mailto:montse.sendin@udl.cat)

*Office: 3.20 EPS  (making an appointment !)*

*(please, do not use the Messaging tool in the VC !)*

# Recommendations

It starts from a base in the **Human-Computer Interaction (HCI)** discipline

**Previous knowledge:**

- **Basic concepts**: Human-Computer Interaction (HCI), usability, user interface, usable interactive system, etc.
- **Methodology** of the **User Centred Design** (UCD), evaluation techniques

*Introductory material is provided in VC*

# Subject competences & Objectives

*Cross-disciplinary*

- **EPS3. Capacity to convey information, ideas, problems and solutions** to both a specialized and no specialized public

    - **Presenting and defending upon** the class las conclusions of the reports previously elaborated regarding the tests carried out

*Degree-specific*

- **CE14 - Capacities to conceptualize, design, develop and evaluate** the human-computer interaction of products, systems, applications and computer services

# Subject competences & Objectives

## Competence CE14

- **Understanding what is** the evaluation of interactive systems in the UCD (**User Centred Design**) context, and **its importance**

- **Knowing** current tools for the collection and data analysis

- **Applying the procedure** to be carried out in a usability test

- **Developing** the role of evaluator of a interactive system

- **Elaborating typified reports** regarding the evaluation technique, collaboratively, as part of **a working group**

  – **Extracting** the main conclusions in the line of improving the usability

# Methodology

*Highlighted aspects of the Subject methodology*

- **Eminently practical and applied subject**

- **Project-Based Learning**, applied over the ICT project developed in the 1rst semester
  - **Active learning** and **competences training**
  - **Cross-disciplinary project**

- **Continuous evaluation** (continuous feedback from teacher)

- **Work in group**

# Methodology

**Theoretical part**

- An **overview** of this part of the HCI discipline is presented
  - **Focusing on** one of the most used **evaluation techniques**
  - **Illustration** through **practical cases**, of which material is available (prototypes, starting documents, videos, etc.)

- To take into account the **Asynchronous part** of the subject
  - Elaboration of a work on a specific topic
  - Destined to deepen in a modality of the technique presented (additional material)

# Methodology

## Practical part

- **Practical application** of the most used technique, *in its entire dimension*:

  - Phases of **planning**, **staging** (laboratory), later **analysis** (laboratory), and **exposition** upon the class of the reports and elaborated conclusions
  - Over the **transversal project** developed throughout the ICT Project

- Interposing well-timed introductory sessions to the available **software equipment**

  - Presentation and demonstration of the tools

  - Practical application to the project

- **Opportunity to practice** the role of evaluator and work in group

# Program

## I – Introduction to the Evaluation of the Usability

*Classroom Session 1*

- **What is the evaluation in the HCI scope?**

- **Objectives of the evaluation and aspects to consider**

- **Taxonomy in evaluation methods**

- **Integration of the evaluation techniques to the lifecycle**

- **Conclusions**

# Program

## II – Usability Testing

### *Classroom Session 1*

- **Definition of *Usability Testing* technique**

### *Classroom Session 2*

- **Typologies of tests**

- **1rst steps in the elaboration of a *Test Plan***

  - Defining the **main purpose** and the **test objectives**

  - Defining **metrics** for the **standardized ISO usability objectives**

**Weekly Actv-1**

# Program

## II – Usability Testing

*Classroom Session 3*

- **Defining the target**

  - The **target audience**, **user profile** and **target user sample**

  - Defining **user recruitment**

  - Elaboration of the **Screener Form**

- **Selection of the tasks**

  - Defining **Scenarios**

← **Weekly Actv-2**

# Program

## II – Usability Testing

*Classroom Session **4***

- **Metrics selection for the non-standardized ISO usability objectives**

- **Data collection**

- **Questionnaires preparation**

    – Elaboration of the **Pre-test, Post-task** and **Post-test questionnaires**
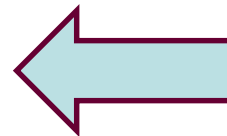
**Weekly Actv-3**

# Program

**II – Usability Testing** *(cont.)*

*Lab. Session 3*

- **Roles in the execution of a UT**
- **Staging of an UT**

  *Time to work in group*

*Lab. Session 4*

- **Elaboration of the final report and results presentation**

  *Time to work in group*

- Benefits and Drawbacks of the UT
- Conclusions

**UT Realization**

# Program

## Seminar --- *UsabiliLab* equipment

- **Morae**: Support software for UT       *(Lab. Sessions 1 & 4)*

  - *Recorder, Observer modules* (Lab. Session 1)

  - *Manager module* (Lab. Session 4)

- **Eyetracking** tech. & **Tobii Studio**    *(Lab. Sessions 2 & 5)*

  - Introduction to *eyetracking* technique & Tobii Studio SW

    - Eyetracker equipment: hardware and software *(Lab. Session 2)*

    - Results Analysis in Tobii Studio *(Lab. Session 5)*

  ➔ *To be intercalated over the semester, according to the rhythm of the evaluation project*

# Evaluation

- ***Practical part 95%***

  - **Practical application** of the UT technique studied

  - To be developed **in group**

  - **Composed of:**

    A. **Presential Activities**:                          **40%**

    B. **Planning and elaboration of reports**:      **50%**

# Evaluation

- *Practical part    95%*

  A. **Presential Activities**: **40%**

---

*Usability Testing*

- **Test Plan** oral presentation (*class room*):          **12%**

  ➔  the **27th March**

- **Usability Testing staging**  (*UsabiliLab*):          **16%**

- **Results report** oral presentation (*class room*):          **12%**

  ➔  the **29th May** (*2nd mid-term exam day*)

---

[1] *Despite in-group activities, **members will be evaluated for his/her individual intervention***

[2] *All members have to be able to expose **any** of the established points*

# Evaluation

- *Practical part*    *95%*

    **B.**    **Planning and elaboration of reports**: **55%**

---

*Usability Testing*

- **Test Plan:**                            **30%**
  - *Minimum grade:*    5
  - *OPCionally developed in a weekly feedback cycle* (1rst mid term process)
  - *Eyetracking application: up to **0,5 extra points** to the mark*

- **Results Report**:                       **25%**
  - *Eyetracking application: up to **0,5 extra points** to the mark*

---

[1] *A **2nd opportunity** is provided to incorporate some improvements (professor feedback)*
- **Correction factor:**    *0,80 %*
- **Correction factor:**    *0,60 %*    *if improvements **only** applied to the **oral presentation***

**(Test Plan)** <u>*Additionally*</u>**, optional weekly activities** *to deliver specific parts of the document (regular feedback during the development)*

[2] *When minimum grade is not obtained* ➔ **theoretical recovery exam** *(19th week)*

[3] *All members will have the same mark **only if** a work-in-group development is proven*

# Evaluation

*OPTional) Theoretical part 15% (<= 1,5 points)*

– **Elaboration of a Theoretical Work**

  • **Asynchronous** part of the subject

  • To be developed **individually**

*OPTional part + COMPulsory part = 110%*

# Proposed Calendar

| Mes | Set | Dl | Dm | Dc | Dj | Dv | Ds | Dg | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Febrer 2023** | | | | 1 | 2 | 3 | 4 | 5 | | |
| | 1a | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Subject presentation and planning aspects | |
| | 2a | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Classroom session 1 | |
| | 3a | 20 | 21 | 22 | 23 | 24 | 25 | 26 | Classroom session 2 | |
| | 4a | 27 | 28 | | | | | | Classroom session 3 | |
| **Març 2023** | | | | 1 | 2 | 3 | 4 | 5 | | |
| | 5a | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Classroom session 4 & *Time to work in group* | |
| | 6a | 13 | 14 | 15 | 16 | 17 | 18 | 19 | Seminar (Lab. Sess.1): Morae Recorder and Observer | Test Plan delivery |
| | 7a | 20 | 21 | 22 | 23 | 24 | 25 | 26 | Seminar (Lab. Sess.2): Eyetracker & Tobii Studio SW (complete demo) | |
| | 8a | 27 | 28 | 29 | 30 | 31 | | | Test Plan oral presentation | |
| **Abril 2023** | | | | | | | 1 | 2 | | |
| | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| | 9a | 10 | 11 | 12 | 13 | 14 | 15 | 16 | | |
| | 10a | 17 | 18 | 19 | 20 | 21 | 22 | 23 | Seminar (Lab. Sess.3): Staging keys; *Time to work in group (Test Plan)* | |
| | 11a | 24 | 25 | 26 | 27 | 28 | 29 | 30 | UT Staging | |
| **Maig 2023** | 12a | 1 | 2 | 3 | 4 | 5 | 6 | 7 | UT Staging | |
| | 13a | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Seminar (Lab. Sess.4): Morae Manager; Keys to elaborate *Results reports* | |
| | 14a | 15 | 16 | 17 | 18 | 19 | 20 | 21 | Seminar (Lab. Sess.5): Results analysis in Tobii Studio; *Time to work in group* | |
| | 15a | 22 | 23 | 24 | 25 | 26 | 27 | 28 | *Time to work in group autonomously* | |
| | 16a | 29 | 30 | 31 | | | | | Results report oral presentation | Results report delivery |
| | | | | | 1 | 2 | 3 | 4 | | |

*Segon Semestre curs 2022-23*

**Legend:**

- Classroom Session (*1.03*)
- Lab. Session (*UsabiliLab – 3.02 EPS*)
- Presential activity
- UT Staging
- Work deliveries

# Subject material

- **Transparences** and **additional material**

- Usability lab software **user manuals**

- **Reference webs**

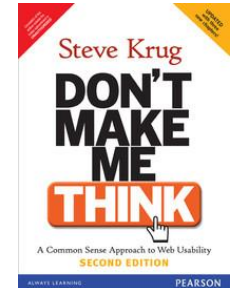- Multimedia documentation as **practical cases**

# Bibliography
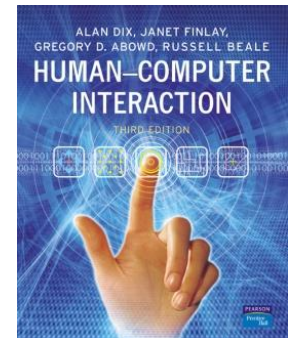
- ***General introduction to HCI concepts***

  - Steve Krug

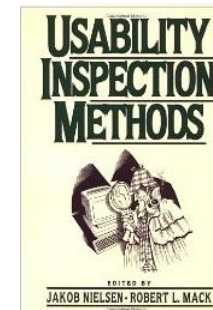    ***Don't make me think! A common sense approach to web usability***

    Prentice Hall  (2001)

  - Alan **Dix**, Janet Finlay, Gregory D. Abowd, Russell Beale
    ***Human-Computer Interaction***
    Pearson Prentice Hall – 3ª edición   (2004)

  - Jakob **Nielsen**, Robert L. Mack

    ***Usability inspection methods***

    Wiley, New York (1994)

# Bibliography

- ***General introduction to HCI concepts***

  - Jakob **Nielsen**
    ***Usability Engineering***
    Morgan Kaufmann, USA  (1994)
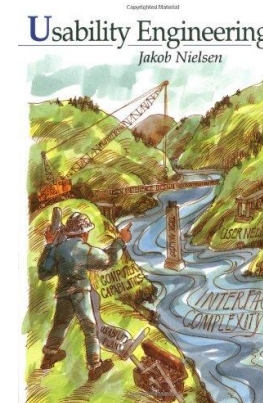
  - Tom Brinck, Scott D. Wood
    ***Usability for the Web. Designing web sites that work***
    Morgan Kaufmann  (2001)
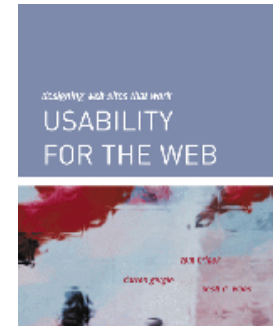
  - Toni Granollers, Jesús Lorés, José J. Cañas
    ***Diseño de sistemas interactivos centrados en el usuario***
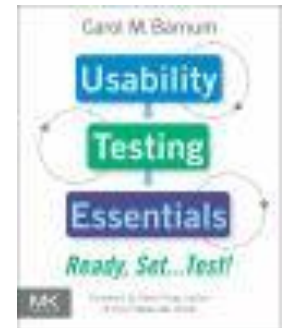    Editorial UOC   (2005)

# Bibliography

- ***Usability Testing***

  - **Sauro**, J., Lewis, J.R.
    ***Quantifying the User Experience***
    ***Practical Statistics for User Research***
    Morgan Kaufmann (2016)

  - **Barnum**, C.M., Burlington, MA
    ***Usability testing essentials : ready, set, ... test!***
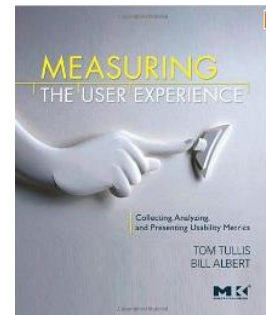    Morgan Kaufmann Publishers (**2011**)

  - **Barnum**, C.M.
    ***Usability Testing and Research***
    Longman (2002)
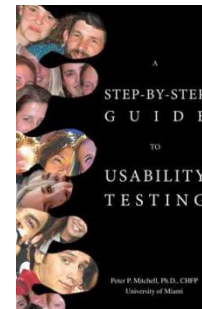
  - Tullis, T., Albert, W.
    ***Measuring the User Experience: Collecting, Analyzing and Presenting Usability Metrics***
    Morgan Kaufmann, USA (2008)
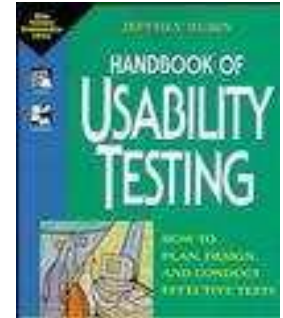
# Bibliography

- ***Usability Testing***   (complementary list)

  - Rubin J.

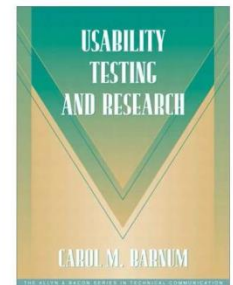    ***Handbook of Usability Testing. How to plan, design and conduct effective tests***

    John Wiley & Sons, Inc. (1994)

  - Mitchell P.P.

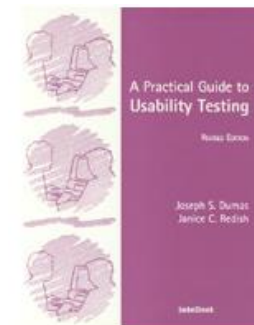    ***A Step-by-Step guide to Usability Testing***

    iUniverse, Inc. (2007)

  - J.S. Dumas, J.C. Redish

    ***A practical guide to usability testing***

    Revised edition. Intellect  (1999)

  - J. Lang, E. Howell

    ***Researching User Experience. User research***

    SitePoint Pty. Ltd. (2017)