Módulo 2

CONCEITOS DE HCD

Nomes, nomes, nomes…

- **User Experience (UX)**
  - How users interact with products and services, and the experiences they have with them.
- **Human-Centered Design (HCD) and User-Centred Design (UCD)**
  - Design approaches that focus on meeting the users' needs.
- **Human-Computer Interaction (HCI)**
  - Understanding how people interact with computers and digital products.
- **Interaction Design (IxD)**
  - Designing the interactions between users and digital products.
- **User Interface Design (UID)**
  - Designing the visual appearance and functionality of a digital product's interface.
- **Information Architecture (IA)**
  - Organising and categorising information to make it easy to find.
- **Human Factors Engineering (HFE)**
  - Taking into account human characteristics when designing products.

Evolution of concerns

- Difficulties with using computers caused loss of 5-10% of work time (Allwood, 1984).
- A group of experienced users lost at least 10 minutes per day on usability related problems (Nielsen, 1993)
- “Three out of four computer users cannot get their machines to do what they want and a minority hit them in sheer frustration” (The Sunday Times, 22 de Fevereiro, 1998).
- “It’s not enough that we build products that function, that are understandable and usable, we also need to build products that bring joy and excitement, pleasure and fun, and yes, beauty to people’s lives.” (Norman, 2004)
- “If we want users to like our software we should design it to behave like a likeable person: respectful, generous and helpful.” (Cooper, 2004)

Usabilidade

"Extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use." (ISO 9241-11).

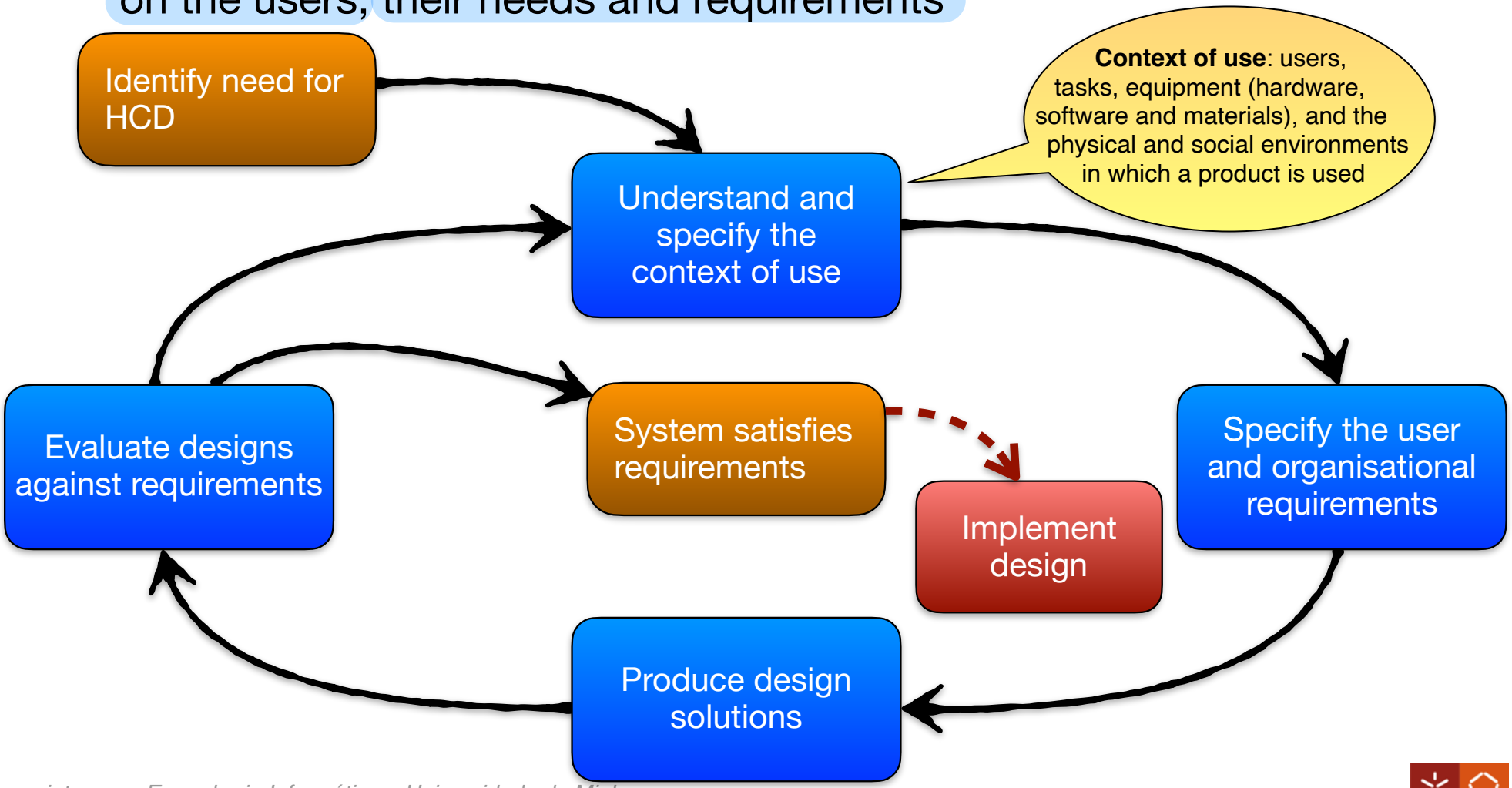
- effectiveness - accuracy and completeness with which users achieve specified goals;
- efficiency - resources used in relation to the results achieve (time, human effort, cost, materials, …)
- satisfaction - extent to which the user's physical, cognitive and emotional responses that result from the use of a system, product or service meet the user's needs and expectations

É necessário compreender

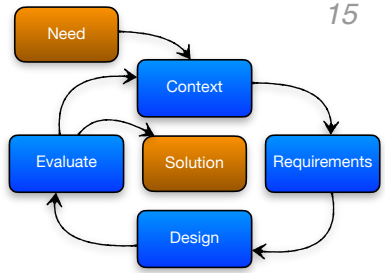
- Os utilizadores
  - A usabilidade deve ser definida em relação a um tipo específico de utilizador — mas existem características gerais dos humanos que podem/devem ser consideradas.
- As actividades que pretendem/devem realizar
  - A usabilidade deve ser definida para tarefas específicas que o sistema deve suportar — no entanto, o sistema acabará muitas vezes por ser utilizado de formas não previstas inicialmente.
- O contexto em que o devem fazer
  - O contexto em que o sistema vai ser utilizado pode influenciar não só a usabilidade do sistema, mas a forma como os testes podem decorrer.

Human-centred design (HCD) ISO 9241-210:2019

- An approach that aims to make systems usable and useful by focusing on the users, their needs and requirements



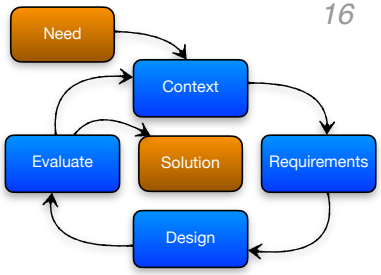
Human-centred design (HCD)



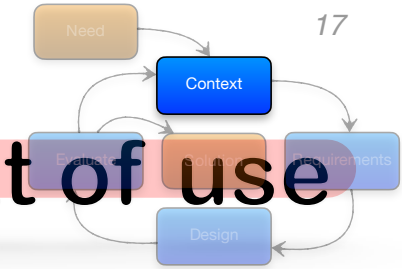
- Key principles:
  1. **The design is based upon an explicit understanding of users, tasks, and environments.**
     - custom-made vs. generic or consumer products
     - appropriate allocation of function between users and technology
  2. **Users are involved throughout design and development.**
     - valuable source of knowledge about the context of use, the tasks, and how users are likely to work with the future product or system
  3. **The design is driven and refined by user-centred evaluation.**
     - feedback from users becomes a critical source of information
  4. **The process is iterative.**
     - preliminary design solutions tested against “real world” scenarios, and the results fed back into progressively refined solutions
  5. **The design addresses the whole user experience.**
     - bringing users into the design process to ensure a specific user experience
  6. **The design team includes multidisciplinary skills and perspectives.**
     - teams do not have to be large but the team should be sufficiently diverse to make appropriate design trade-off decisions
     - Individual team members can cover a number of different skill areas and viewpoints

E.g.
end-user; purchaser, manager of user; application domain specialist, business analyst; systems analyst, systems engineer, programmer; marketer, salesperson; user interface designer, visual designer; human factors and ergonomics expert, human-computer interaction specialist; technical author, trainer and support personnel.

HCD advantages



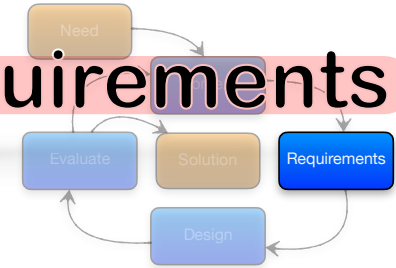
- Making systems more usable can contribute to:
  - systems that are easier to understand and use, thus **reducing training and support costs**,
  - **improved user satisfaction** and reduced discomfort and stress,
  - **improved productivity** and operational efficiency of users and organisations, and
  - **improved product quality and appeal** to the users — **a competitive advantage**



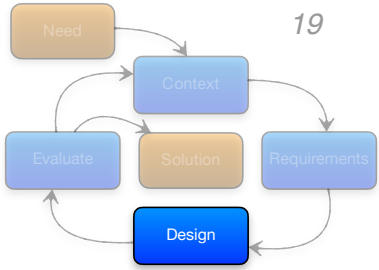
Understand and specify the context of use

- Description of the relevant characteristics of the users, tasks and environment which identifies what aspects have an important impact on the system design
- The context of use description should
  - specify the range of intended users, tasks and environments in sufficient detail to support design activity;
  - be derived from suitable sources;
  - be confirmed by the users or if they are not available, by those representing their interests in the process;
  - be adequately documented;
  - be made available to the design team at appropriate times and in appropriate forms to support design activities.

Specify the user and organisational requirements



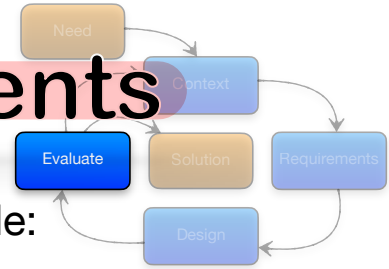
- Complements specification of functional requirements
- This specification should define the "allocation of function"
  - the division of system tasks into those performed by humans and those performed by technology
- The specification of user and organisational requirements should:
  - identify the range of relevant users and other personnel in the design,
  - provide a clear statement of the human-centred design goals,
  - set appropriate priorities for the different requirements,
  - provide measurable criteria against which the emerging design can be tested,
  - be confirmed by the users or those representing their interests in the process,
  - include any statutory or legislative requirements, and
  - be adequately documented.



Produce design solutions

- use existing knowledge to develop design proposals with multi-disciplinary input
  - user interface guidelines, similar products, standards, etc.
- make the design solutions more concrete using prototypes (simulations, mock-ups, etc.)
  - more effective communication with users
  - reduced need and cost of reworking products later in the life cycle
- present the design solutions to users and allow them to perform tasks (or simulate tasks)
  - prototypes are not simply to show users a preview of the design, they are used to collect user feedback (comments, difficulties)
- alter the design in response to the user feedback and iterate this process until the human-centred design goals are met
  - user feedback provides guidance on functional design changes to improve usability
  - feedback can also help to refine the scope and purpose of the interactive system
- manage the iteration of design solutions
  - The results of the above activities should be recorded

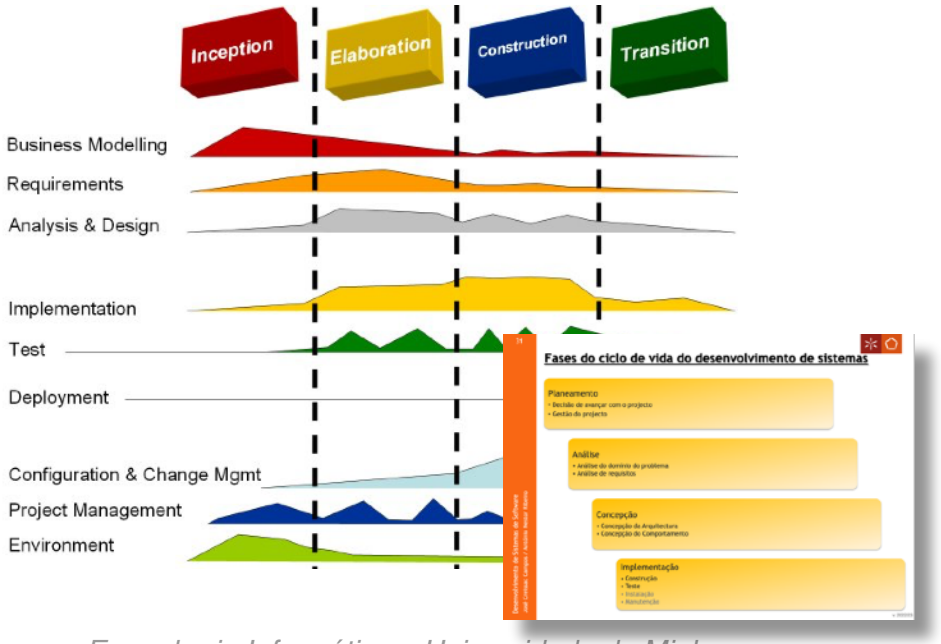
Evaluate designs against requirements



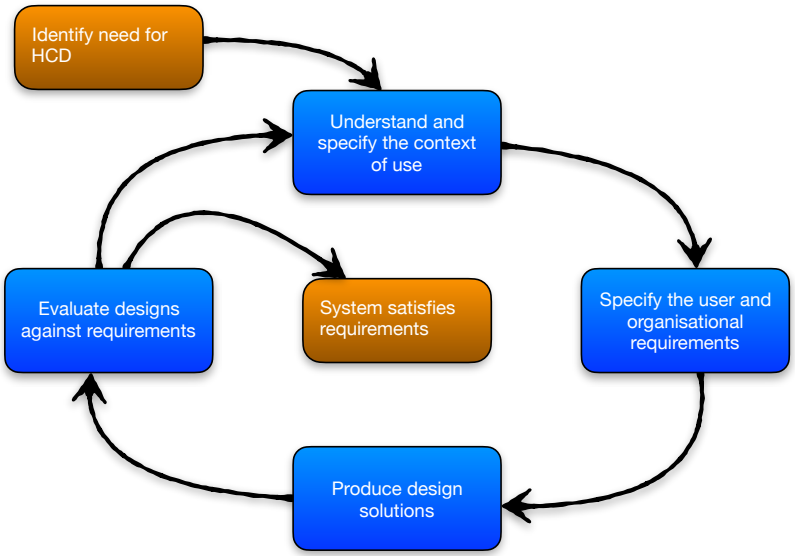
- An essential step in HCD, should take place at all stages in the system life cycle:
  - to guide design
    - how well the system meets its goals; potential problems and need for improvements; select design options; elicit further requirements from the users
  - to assess whether objectives have been achieved
    - demonstrate that a design meets the human-centred requirements
    - assess conformity to standards
  - to monitor long-term use of the system
    - collecting user input over a period of time
    - some effects are not recognisable until the system has been used for a period of time
    - there may be effects which result from external factors (e.g. unforeseen changes in working practices)
- It is important to start evaluation as early as possible
  - The longer the process has progressed, the more expensive the introduction of changes is
- expert vs. user-based evaluation

UP vs ISO 9241-210

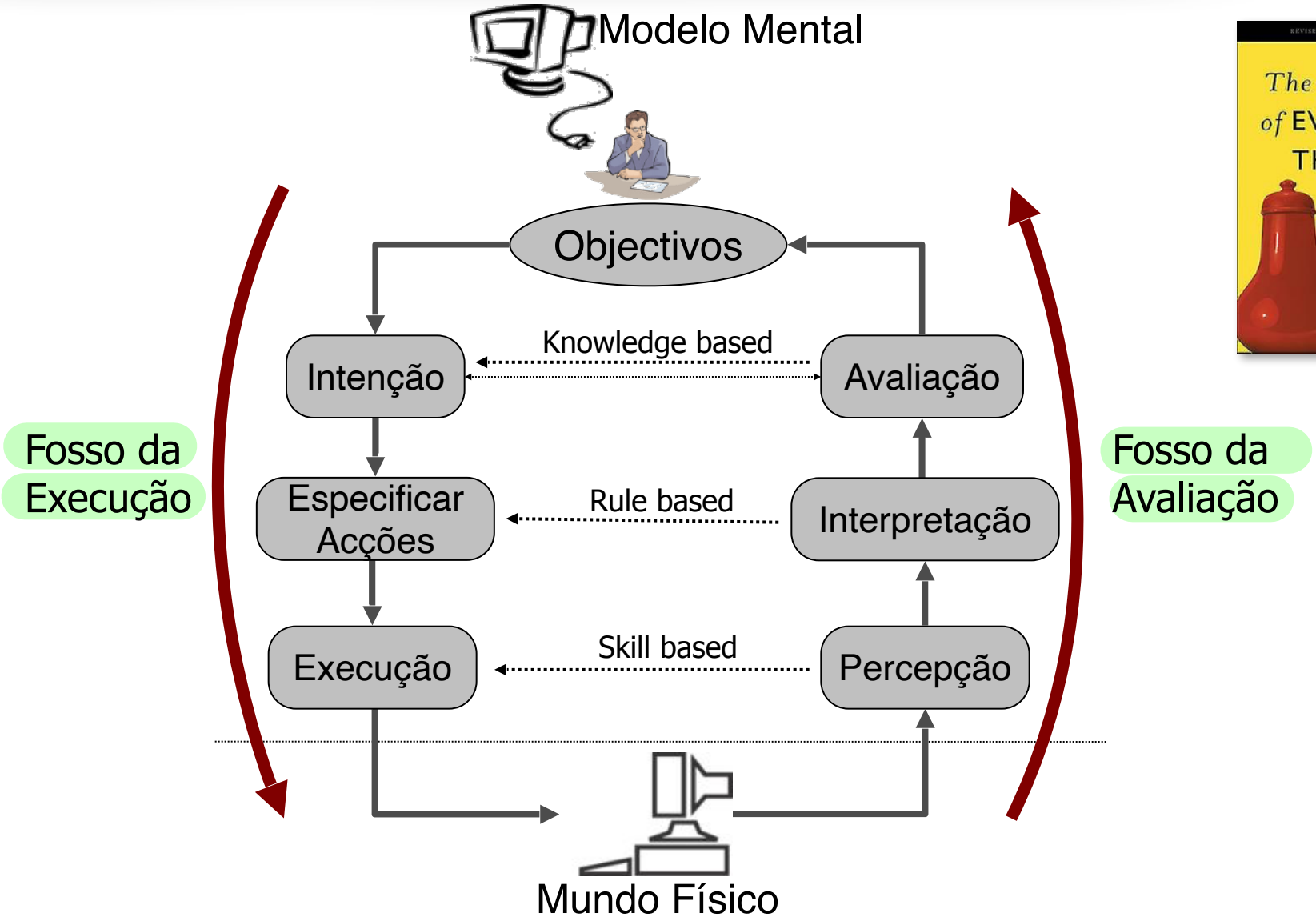
- Unified Process
  - Guiado por requisitos funcionais
  - Foco na construção do sistema

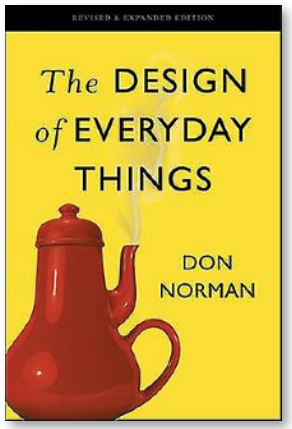


- ISO 9241-210
  - Human-centred design for interactive systems
  - Foco na concepção/avaliação centrada no utilizador



Modelo de Interacção (de Norman)



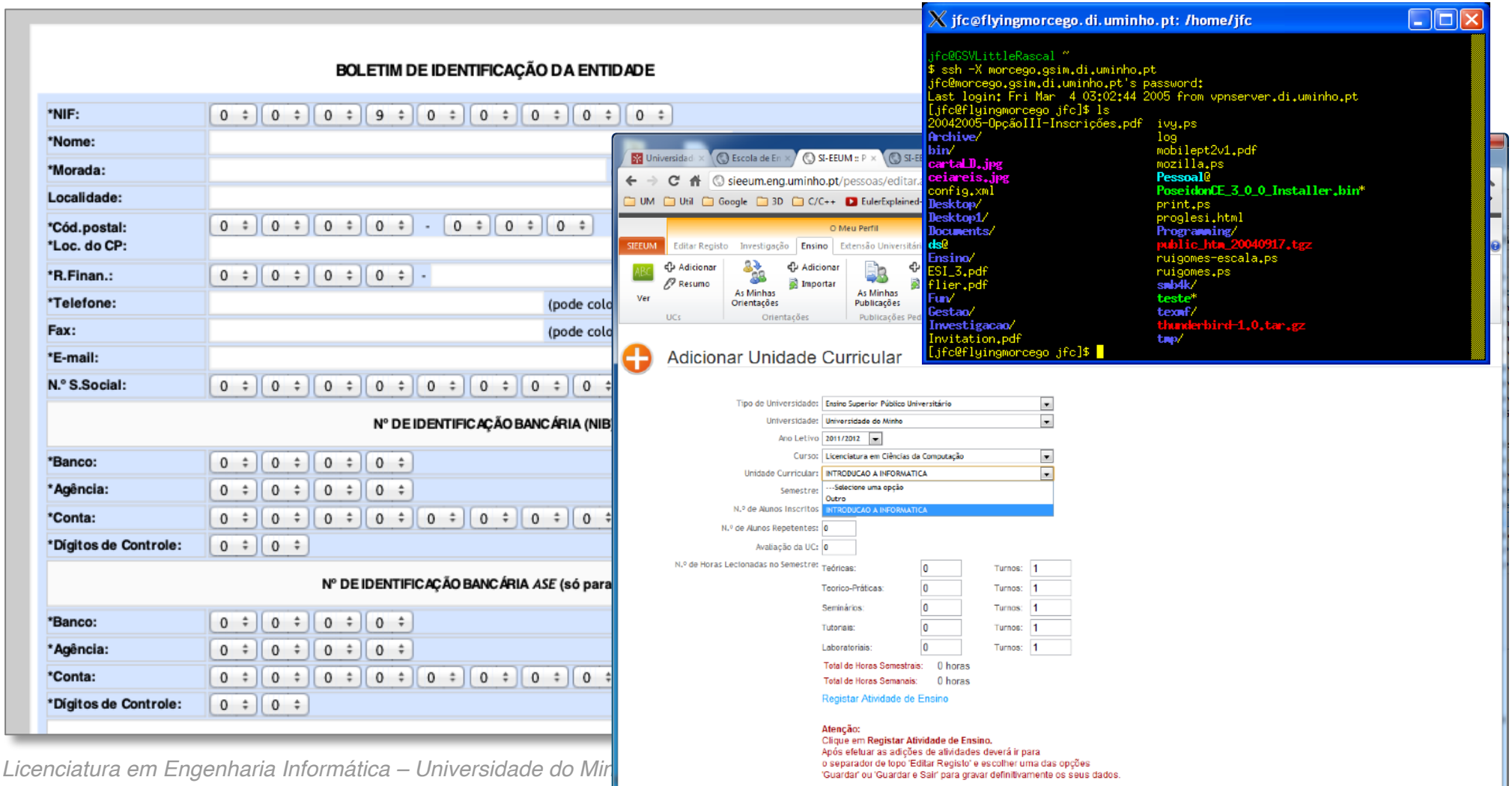


Modelo de Interacção de Norman

- **Fosso da Execução**
  - Esforço que o utilizador tem que realizar para efectuar determinada tarefa.
  - Distância entre os objectivos do utilizador e a forma como pode atingi-los.
  - Atenção à definição das tarefas!
- **Fosso da Avaliação**
  - Esforço que o utilizador tem que realizar para perceber a interface.
  - Distância entre a informação que a interface fornece (e de que forma) e aquela que o utilizador pretende.
  - Atenção ao modo como a informação é apresentada!

Fosso da Execução

- O esforço necessário para realizar o que se pretende



Fosso da Avaliação

- O esforço necessário para perceber o estado do sistema