What is the user interface? The part of the system the user directly interacts with.

User Interface involves:
- Specific hardware features of machine
  - e.g. type of display and input devices
- General environment supplied by the machine
  - E.g. dedicated to playing music vs general purpose computers
- Content of displays
  - What information is present?
  - When and where is the information available?
  - How is the information represented?
- Behavior of software - procedures user must follow:
  - Conventions or user interface standards for a machine or system
    - E.g. the ESC key often has a consistent effect in PC software
  - Specific behavior of a particular application program.
    - What does the user have to do?
    - What does the program do for the user?
  - Specific behavior of the operating system
    - How does it support user tasks?
- Supporting documentation, training, technical support, and on-line help

For example: The iPod. Is there anyone here who is *not* familiar with the iPod?

What is the interface to the iPod?
- Visual display. Scroll wheel. That’s it, right?
- The cable for connecting you iPod to a computer.
  - The behavior of the computer and iPod when you plug them together.
  - The ease or difficulty for connecting to other devices; your car stereo.
- iTunes. Apple music store through the iTunes software.
  - Managing and setting up your songs on your iPod through this richer interface.
  - Your interaction with Apple as you buy music.
  - Your interaction with iTunes as you try to copy music from your iPod back to your computer.
- The way it makes you look? Your self-perception and status for owning and using an iPod?

Is it a good interface? What makes a good interface?
- Does it provide the needed functionality? Is it easy to use? Does it support the user’s task?
  - It depends on the task. Picking and playing a song? Deleting a corrupt file? Deejaying?
Does it fit well into the target context of use? Almost always yes and no.

Yes, the iPod supports the task of (a) being perceived as cool, (b) listening to music.

No, the iPod does not support the task of (a) saving money, (b) being physically and mentally present in the world, and being engaged with the people around you. (Laptops and wireless the same.) Contributes to the social deterioration of campuses, cities, cafés.

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**The flow of information through the computer and the human.**

![Diagram of the flow of information through the computer and the human.]

Will the user know progress is being made?
Will the correct next action be clear?

(This is simplified. What is missing? Does this correctly represent you using your computer? Networks. Other people. Distractions.)

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Offer more examples from the overhead transparencies.

**Is this a good user interface?** Two important points: (a) A screenshot is not a user interface. How does the system work? How does the interaction unfold over time? (b) You cannot answer this question without knowing the user’s task.

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**How do you know if a user interface is easy to learn and easy to use?**

User observation studies.
Observe real users doing real tasks.
1. Recruit users who are truly representative of your target audience.
   If mixed audience, get mixed users. You are not necessarily the typical user.
2. Get them into a context that is as close as possible to the actual context of use.
3. Present them with the actual interface or a prototype (mockup, simplified representation).
4. Ask them to try to do real, specific tasks.
5. Try to get them to think aloud. Having users work in pairs helps.
6. DO NOT HELP THEM.
8. Analyze where they had trouble. Fix it. Repeat until a majority of people can do the tasks.
Note that this is not a focus group. It is not a thought exercise.

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**Key Points:**
(a) The user interface includes everywhere that a person interacts with the computer.
(b) It is not just the screenshots and controls. It is the dynamic behavior.
(c) The interface must both (i) provide the needed functionality and (ii) be easy to use.
(d) A good system design considers the flow of information through the human as well.
(e) You can only evaluate usability with real users doing real tasks.

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**Our relationship with technology has evolved such that we are prepared now for relationships with robots.**
From Sherry Turkle, Professor of the Social Studies of Science and Technology at MIT.

We have new habits of mind.
We are narcissistic. Not meaning selfish, but meant as in psychodynamic theory—someone unsure, who needs to be continually shored up. The narcissist turns other people into self-objects. Disappointment follows. MySpace and Second Life are self-objects. Social robots are, too.

For people who are lonely but fearful of intimacy, virtual worlds provide a new state of self—the connected, wired self. “I’m on.” “I’m on... line/chat/email/phone.”
People spend less time sitting and thinking uninterrupted.
We see ourselves as cyborgs, at one with our devices. Extending our bodies.
Tethered adolescents—There is always a parent on speed dial. You used to be forced to experience bad feelings. Meaningful moments of right of passage are lost. These usually occur for children around ages twelve to fourteen.
It used to be: I have a feeling. I need to tell someone.
Now it is: I need to have a feeling. I have to call someone, or chat, or email.

These questions relate not to what the machines are becoming but what *we* are becoming as we become increasingly intimate with our machines.
Our relationship with technology has evolved such that we are prepared now for relationships with robots.