Understanding how interfaces affect users

Overview

- Expressive interfaces
  - how the 'appearance' of an interface can elicit positive responses

- Negative aspects
  - how computers frustrate users

- Anthropomorphism and interface agents
  - The pros and cons

- Designing synthetic characters

Affective aspects

- HCI has generally been about designing efficient and effective systems

- Recently, move towards considering how to design interactive systems to make people respond in certain ways
  - e.g. to be happy, to be trusting, to learn, to be motivated

Expressive interfaces

- Colour, icons, sounds, graphical elements and animations are used to make the 'look and feel' of an interface appealing
  - Conveys an emotional state

- In turn this can affect the usability of an interface
  - People are prepared to put up with certain aspects of an interface (e.g. slow download rate) if the end result is very appealing and aesthetic

Friendly interfaces

- Microsoft pioneered friendly interfaces for technophobes - 'At home with Bob' software

- 3D metaphors based on familiar places (e.g. living rooms)

- Agents in the guise of pets (e.g. bunny, dog) were included to talk to the user
  - Make users feel more at ease and comfortable

User-created expressiveness

- Users have created *emoticons* - compensate for lack of expressiveness in text communication:

  Happy :)
  Sad :<
  Sick :X
  Mad >:
  Very angry >:-(

- Also use of icons and shorthand in text and instant messaging has emotional connotations, e.g.

  I 12 CU 2NITE

User frustration

- **Many causes:**
  - When an application doesn't work properly or crashes
  - When a system doesn't do what the user wants it to do
  - When a user's expectations are not met
  - When a system does not provide sufficient information to enable the user to know what to do
  - When error messages pop up that are vague, obtuse or condemning
  - When the appearance of an interface is garish, noisy, gimmicky or patronizing

Error messages

"The application Word Wonder has unexpectedly quit due to a type 2 error."

Why not instead:

"the application has *expectedly* quit due to poor coding in the operating system"

- Shneiderman's guidelines for error messages include:
  - avoid using terms like FATAL, INVALID, BAD
  - Audio warnings
  - Avoid UPPERCASE and long code numbers
  - Messages should be precise rather than vague
  - Provide context-sensitive help

Website error message...

Error 404 – Web Page Not Found

More helpful error message

"The requested page **/helpme** is not available on the web server.

If you followed a link or bookmark to get to this page, please let us know, so that we can fix the problem. Please include the URL of the referring page as well as the URL of the missing page.

Otherwise check that you have typed the address of the web page correctly.

The Web site you seek
Cannot be located, but
Countless more exist."

Should computers say they're sorry?

- Reeves and Naas (1996) argue that computers should be made to apologize

- Should emulate human etiquette

- Would users be as forgiving of computers saying sorry as people are of each other when saying sorry?

- How sincere would they think the computer was being? For example, after a system crash:
  - "I'm really sorry I crashed. I'll try not to do it again"

- How else should computers communicate with users?

Anthropomorphism

- Attributing human-like qualities to inanimate objects (e.g. cars, computers)

- Well known phenomenon in advertising
  - Dancing butter, drinks, breakfast cereals

- Much exploited in human-computer interaction
  - Make user experience more enjoyable, more motivating, make people feel at ease, reduce anxiety

Which do you prefer?

1. As a welcome message

- "Hello Chris! Nice to see you again. Welcome back. Now what were we doing last time? Oh yes, exercise 5. Let's start again."

- "User 24, commence exercise 5."

Which do you prefer?

2. Feedback when get something wrong

1. "Now Chris, that's not right. You can do better than that.Try again."
2. "Incorrect. Try again."

Is there a difference as to what you prefer depending on type of message? Why?

Evidence to support anthropomorphism

- Reeves and Naas (1996) found that computers that flatter and praise users in education software programs -> positive impact on them

- "Your question makes an important and useful distinction. Great job!"

- Students were more willing to continue with exercises with this kind of feedback

Criticism of anthropomorphism

- Deceptive, make people feel anxious, inferior or stupid

- People tend not to like screen characters that wave their fingers at the user & say:
  - Now Chris, that's not right. You can do better than that.Try again."

- Many prefer the more impersonal:
  - "Incorrect. Try again."

- Studies have shown that personalized feedback is considered to be less honest and makes users feel less responsible for their actions (e.g. Quintanar, 1982)

Virtual characters

- Increasingly appearing on our screens
  - Web, characters in videogames, learning companions, wizards, newsreaders, popstars

- Provides a persona that is welcoming, has personality and makes user feel involved with them

Disadvantages

- Lead people into false sense of belief, enticing them to confide personal secrets with chatterbots (e.g. Alice)

- Annoying and frustrating
  - E.g. Clippy

- Not trustworthy
  - virtual e-commerce assistants?

Miss boo.com

hello…we've an eyeful of fresh sights for you!

ms. boo tells all…

What
do you
think
of Miss boo?

Persuasive advice?

roll over, love, and i'll
tell you why i picked
these products!

Virtual sales agents

- What do the virtual agents do?

- Do they elicit an emotional response in you?

- Do you trust them?

- Is the style of interaction different for men and woman's clothes?

- What facial expression does Miss.boo have?

- Is she believable, pushy, helpful?

- Would it be different if she was a male figure?

Virtual characters: agents

- Can be classified in terms of the degree of anthropomorphism they exhibit:
  - Synthetic characters
  - animated agents
  - emotional agents
  - embodied conversational agents

(i)Synthetic characters -Silas the dog

• autonomous, with internal states and able to respond to external events
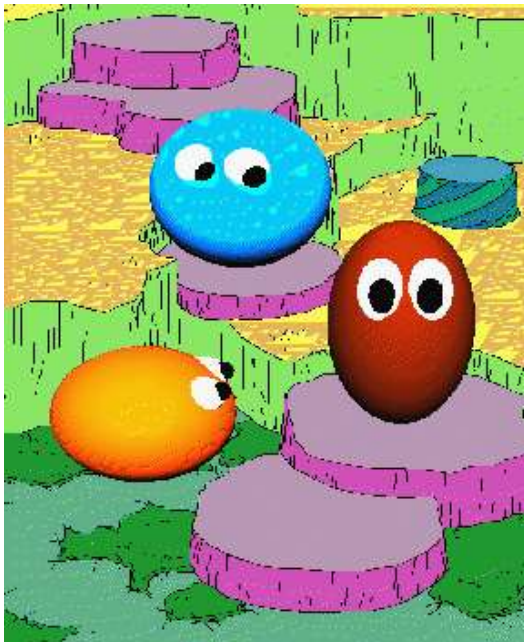

(Blumberg, 1996 - MIT)

(ii) Animated agents

- Play a collaborative role at the interface
- Often cartoon-like
- e.g. Herman the bug
  (Lester et al, 1997
  Intellimedia)

- flies into plants
  & explains things
  on-the-fly & gives
  advice to students

(iii) Emotional agents

- Pre-defined personality and set of emotions that user can change

The Woggles, Bates, 1994

(iv) Embodied conversational agents

- Rea, real-estate agent, showing user an apartment

- Human-like body

- Uses gesture, non-verbal communication (facial expressions, winks) while talking

- Sophisticated AI techniques used to enable this form of interaction

Cassell, 2000, MIT

Conversation with Rea

- *Mike approaches screen and Rea turns to face him and says:*
- Hello. How can I help you?
- Mike: I'm looking to buy a place near MIT.
- *Rea nods, indicating she is following.*
- Rea: I have a house to show you. (picture of a house appears on the screen)
- Rea: it is in Somerville.
- Mike: Tell me about it.
- *Rea looks up and away while she plans what to say.*
- Rea: It's big.
- *Rea makes an expansive gesture with her hands.*
- *Mike brings his hands up as if to speak, so Rea does not continue, waiting for him to speak.*
- Mike: Tell me more about it.
- Rea: Sure thing. It has a nice garden...

Which is the most believable agent?

- Believability refers to the extent to which users come to believe an agent's intentions and personality
- Appearance is very important
  - Are simple cartoon-like characters or more realistic characters, resembling the human form more believable?
- Behaviour is very important
  - How an agent moves, gestures and refers to objects on the screen
  - Exaggeration of facial expressions and gestures to show underlying emotions (cf animation industry)

Key points

- Affective aspects are concerned with how interactive systems make people respond in emotional ways

- Well-designed interfaces can elicit good feelings in users

- Expressive interfaces can provide reassuring feedback

- Badly designed interfaces make people angry and frustrated

- Anthropomorphism is increasingly used at the interface, in the guise of agents and virtual screen characters