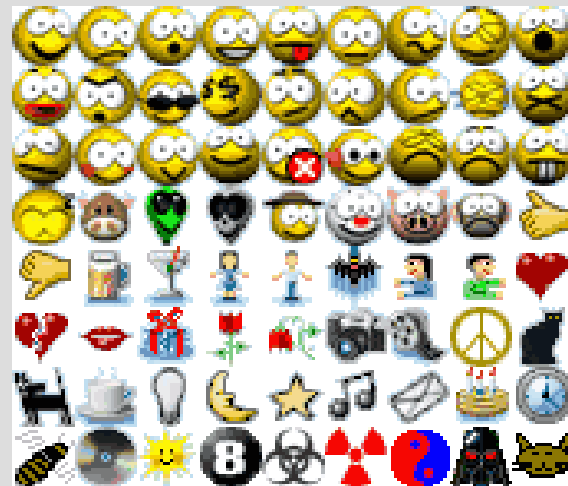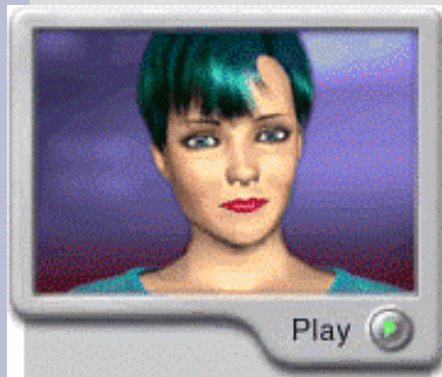# Understanding how interfaces affect users

Overview

- Expressive interfaces
  - How the appearance of an interface can elicit positive responses
- Negative aspects
  - How computers frustrate users
- Anthropomorphism and interface agents
  - Pros/cons debate
- Designing synthetic characters

Affective aspects

- HCI has traditionally 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

- Colors, icons, sounds, graphical elements and animations are used to make the "look & 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 (i.e slow downloads) if the end result is very appealing and pleasing

Friendly interfaces

- "At home with Bob" friendly software - 3D metaphors based on a living room
- Agents in guise of pets (dog, bunny) were included to talk to the user
  - Make users feel at ease and comfortable
- Spectacular failure

User created expressiveness

- Emoticons compensate for lack of expressiveness in text communication
  - Happy :-)
  - Sad   :-(
  - Mad   >:
- Also use of icons and shorthand in text and instant messaging has emotional connotations
  - I 12 CU 2NITE

User frustration

- Many causes
  - Applications don't work or crash
  - Systems doesn't do what users wants
  - User expectations are not met
  - Unsufficient information to enable the user to know what to do
  - Vague error messages, obtuse and condemning
  - Appearance of interface is garish, noisy, gimmicky or patronizing

(Microsoft)

Error messages

- "The application has unexpectedly quit due to a type 2 error "
- "The application has expectedly quit due to poor coding"
- Shneiderman's guidelines for error messages include:
  - Avoid using term like FATAL, INVALID, BAD
  - Audio warnings
  - Avoid UPPERCASE and long code numbers
  - Messages should be precise rather than vague
  - Context-sensitive help
    - Google: did you mean committee

Blue screen of death I

BSOD II

Website error messages

- Error 404: Web Page Not Found
- Instead
  - "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.

Should computers say they are sorry

- Reeves and Naas (1996) argue that computers should be made to apologize
- 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 ?
  - "I am sorry I crashed. I will try to not do it again"

Anthropomorphism

- Attributing human-like qualities to inanimate objects (e.g cars, computers)
- Frequently used in advertising
  - Dancing butter, drinks, cereal
- Much exploited in HCI
  - Make user experience more enjoyable, more motivating, make people feel at ease, reduce anxiety

(Microsoft)

Which do you prefer ?

- 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.
- Feedback when something is wrong
  - " Now Chris that's not right. You can do better than that. Try again. "
  - " Incorrect. Try again. "
- Is there a difference as to what you prefer depending on the type of message ? Why ?

Evidence to support anthropomorphism

- Reeves and Naas (1996) found that computers that flatter and praise users in education have positive impact on their learning
- "Your question makes an important and useful distinction. Great job"
- Students were more willing to continue exercises with this kind of feedback

Criticism of anthropomorphism

- Deceptive, makes people feel anxious, inferior, or stupid
- People don't tend to like screen characters that wave their fingers at the user and say:
  - "Now Chris. That's not right. You can do better than that. Try again"
- Many prefer the 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)
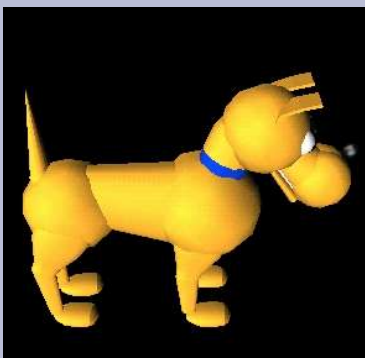
Virtual Characters
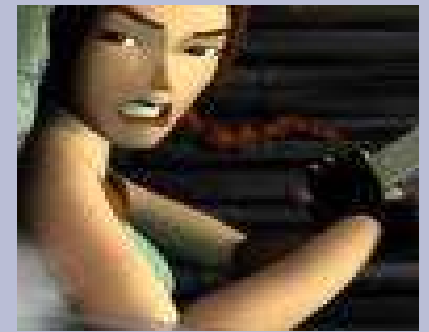
- Increasingly appearing on our screens
  - Web, characters in videogames, learning companions, wizards, newsreaders, popstars
- Provides a persona that is welcoming, has personality and makes user feel involved with them
- Check out: Idoru by W. Gibson
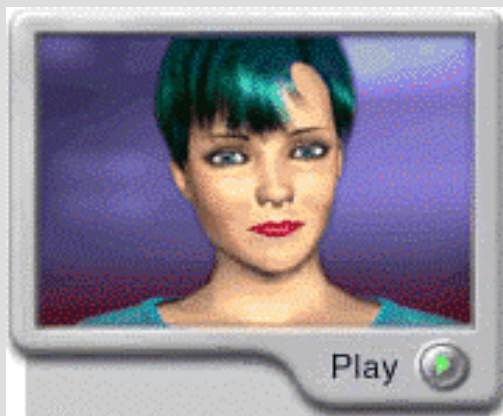
Disadvantages

- Lead people into false sense of belief, enticing them to confide personal secrets with chatterbots (Alice)
- Annoying and frustrating
  - Clippy
- Not trustworthy
  - Virtual sales agents

Virtual characters-agents

- Can be classified in terms of the degree of anthropomorphism they exhibit:
  - Synthetic characters
  - Animated agents
  - Emotional agents
  - Embodied conversational agents

Synthetic Characters

- Autonomous with internal states and able to respond to external events
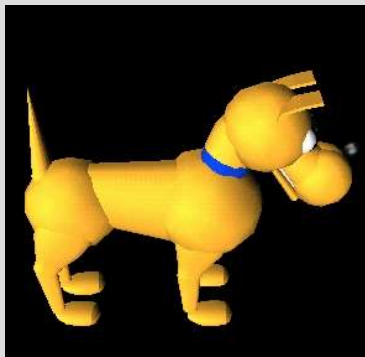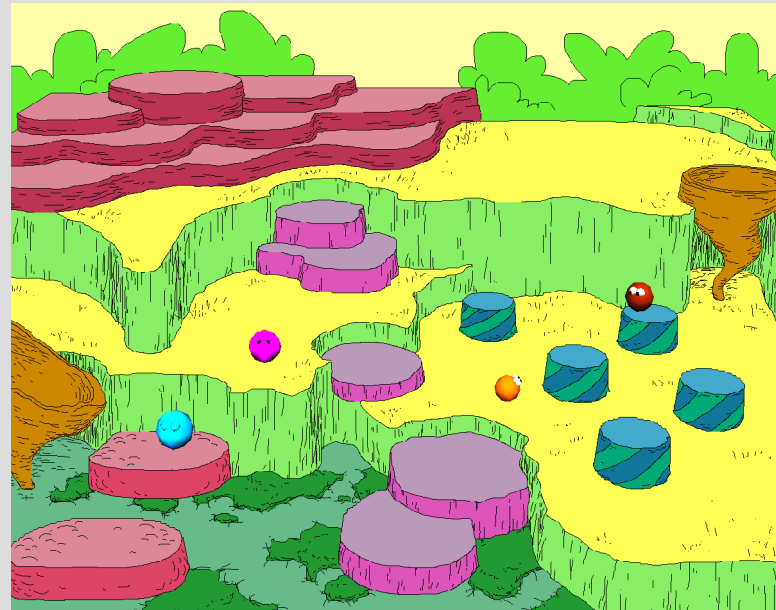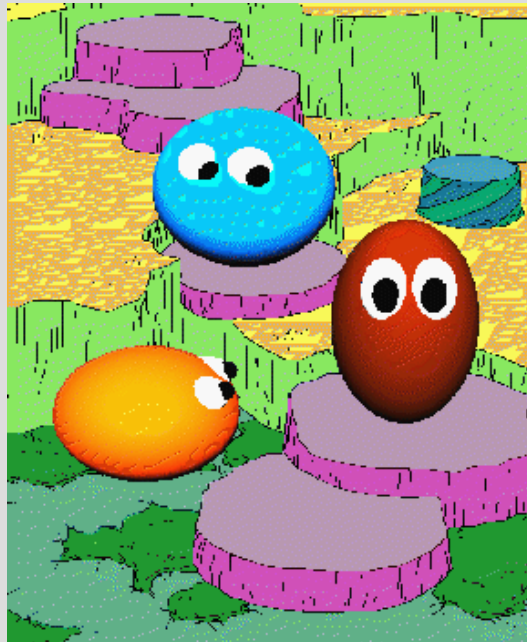

(Blumberg, 1996 - MIT)

Animated Agents

- Play 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

Emotional agents

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

The Woggles, Bates, 1994

Embodied conversational agents

- Rea real-estate agent
- Human-like body
- Uses gesture, non-verbal communication (facial expressions, winks)
- Sophisticated AI-techniques used to enable this kind of interaction
- www.robot-hosting.com

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 intensions 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 in the screen
  - Exaggeration of facial expressions and gestures to show underlying emotions (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
- Expressive interfaces – reassuring feedback
- Badly designed interfaces make people angry and frustrated
- Anthropomorphism, although still debated, is increasingly used at the interface, in the guise of agents and virtual characters