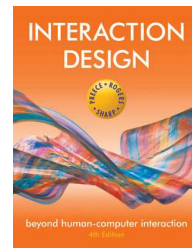


Chapter 5

Emotional Interaction



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Overview



- ❖ Emotions and the UX.
- ❖ Expressive (معبر) interfaces.
 - How the 'appearance' of an interface can affect users.
- ❖ Frustrating interfaces.
 - What are they and how to reduce them.
- ❖ Persuasive (مقنع) technologies and behavioral change.
 - How technologies can be designed to change people's attitudes and behaviour.
- ❖ Anthropomorphism (التجسيم).
 - The pros and cons.
- ❖ Models of emotion.



Emotions and the UX

- ❖ HCI has traditionally been about designing **efficient** and **effective** systems.
- ❖ Now more about how to design **interactive** systems that make people **react** in certain ways.
 - e.g. to be happy, to be trusting, to learn, to be motivated.
- ❖ **Emotional interaction** is concerned with how we feel and react when interacting with technologies.



3

Activity

- ❖ Try to remember the emotions you went through when buying a big ticket item online (e.g. a fridge, a vacation, a computer)
- ❖ How many different emotions did you go through?



4

Emotional Interaction

- ❖ What makes us happy, sad, annoyed, anxious, frustrated, motivated, and so on.
 - Translating this into different aspects of the UX.
- ❖ Why people become emotionally attached to certain products (e.g. virtual pets).
- ❖ Can social robots help reduce loneliness and improve happiness?
- ❖ How to change human behavior through the use of emotive (انفعالي) feedback.



5


Activity

- ❖ Do you feel more creative when you are in a happy mood?
- ❖ Do you get less work done when you are feeling stressed?



6

Expressive Interfaces

- ❖ Provide reassuring feedback that can be both informative and fun.
- ❖ But can also be intrusive (تطفلي), causing people to get annoyed and even angry.
- ❖ **Color**, 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 appealing. 



7

User-Created Expressiveness

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

Happy	:)
Sad	:<
Sick	:X
Mad	>:
Very angry	>:-(
- ❖ Also use of icons and shorthand in texting and instant messaging has emotional meanings, e.g.

LOL, I 12 CU 2NITE



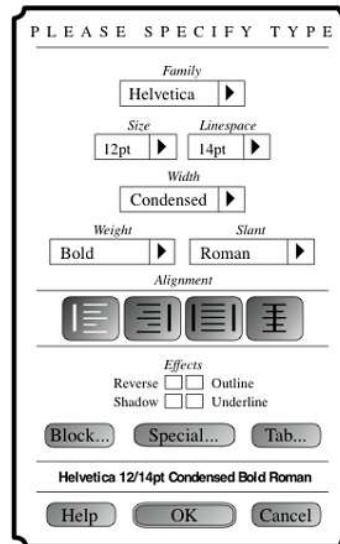
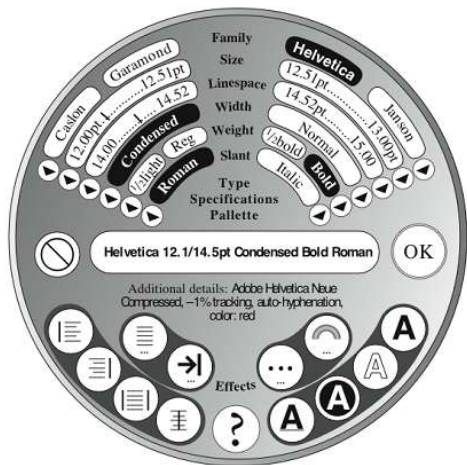
8

Would you use any of these? What for?



9

Which one do you prefer?



Marcus Study

- ❖ Marcus (1992) proposed interfaces for different user groups:
 - Left dialog box was designed for **white American females**.
 - Who “prefer a more detailed presentation, curvilinear shapes and the absence of some of the more brutal terms”
 - Right dialog box was designed for **European adult male academics**.
 - Who like “formal style, a controlled treatment of information density, and a classical approach to font selection”



11

Teasley Study

- ❖ Teasley *et al.* (1994) found Marcus’s not to be true.
 - The European dialog box was preferred by all and was considered most appropriate for all users.
 - Round dialog box was strongly disliked by everyone.



12

Friendly Interfaces

- ❖ Microsoft pioneered friendly interfaces for technophobes (1995)
 - **'At home with Bob'** software.
 - 3D metaphors based on familiar places (e.g. living rooms).
 - Agents in the shape of pets (e.g. bunny, dog) were included to talk to the user.
 - Make users feel more at ease and comfortable.



13

Bob



14

Clippy

- ❖ Why was **Clippy** disliked by so many?
- ❖ Was it annoying, distracting, patronising or other?
- ❖ What sort of user liked Clippy?



It looks like you're writing a letter.

Would you like help?

- Get help with writing the letter
- Just type the letter without help
- Don't show me this tip again



15

Frustrating Interfaces

- ❖ 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.



16

Frustrating Interfaces cont.

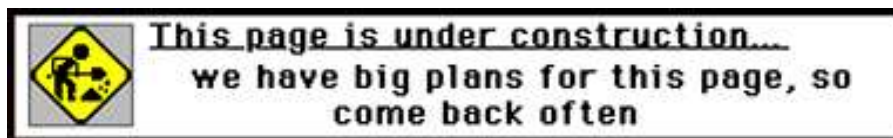
- When error messages pop up that are ambiguous, stupid or condemning.
- When the appearance of an interface is garish (متوهج), noisy, gimmicky (دخيلة) or patronizing.
- When a system requires users to carry out too many steps to perform a task, only to discover a mistake was made earlier and they need to start all over again.



17

Gimmicks وسيلة للتحايل

- ❖ Amusing to the designer but not the user, e.g.
 - Clicking on a link to a website only to discover that it is still '**under construction**'



18

Error Messages

“The application has unexpectedly quit due to a **type 2 error**.”

- ❖ **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.



19

Website Error Messages

Error 404 – Web Page Not Found

FLPPS009

FastLane Error!

Your login information is incorrect...

Please verify that you typed in your Last Name, SSN and Password correctly. If you still cannot login, Please contact the FastLane Administrator regarding your access rights.

[Return To Previous Page](#)



20

More Helpful Error Message

“The requested page [/helpme.html](#) 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.”



21

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”



22

Detecting emotions and emotional technology

- ❖ Sensing technologies used to measure GSR (Galvanic Skin Response), facial expressions, gestures, body movement, etc.
- ❖ Aim is to predict user's emotions and aspects of their behavior
 - e.g. what is someone most likely to buy online when feeling sad, bored or happy.



23

Facial Coding

- ❖ Measures a user's emotions as they interact with a computer or tablet .
- ❖ Analyses images captured by a webcam of their face.
- ❖ Uses this to measure how engaged the user is when looking at movies, online shopping sites and ads.
- ❖ 6 core expressions - **sadness, happiness, disgust, fear, surprise and anger.**



24

How to use the emotional data?

- ❖ If user turn his face when an ad pops up
→ feel disgust
- ❖ If start smiling
→ they are feeling happy
- ❖ Website can adapt its ad, movie storyline or content to match user's emotional state
- ❖ Eye-tracking, finger pulse, speech and words/phrases also analysed when tweeting or posting to Facebook.



25

Indirect emotion detection

- ❖ Beginning to be used more to predict someone's behavior.
- ❖ For example, determining a person's suitability for a job, or how they will vote at an election.
- ❖ Do you think it is **creepy** that technology can read your emotions from your facial expressions or from your tweets?



26

Persuasive (مقنع) Technologies and Behavioral Change

- ❖ Interactive computing systems intentionally designed to change people's attitudes and behaviours (Fogg, 2003).
- ❖ A diversity of techniques now used to change what they do or think:
 - Pop-up ads, warning messages, reminders, prompts, personalized messages, recommendations, Amazon 1-click.
 - Commonly referred to as **nudging** (إِستِرعَى الإِنتِبَاه)



27

Nintendo's Pocket Pikachu

- ❖ Changing bad habits and improving wellbeing.
 - Designed to motivate children to be more physically active on a regular basis.
 - Owner of the digital pet that 'lives' in the device is required to walk, run, or jump.
 - If owner does not exercise the virtual pet becomes angry and refuses to play anymore.



28



How Effective?

- ❖ Is the use of novel forms of interactive technologies (e.g., the combination of sensors and dynamically updated information) that monitor, nag, or send personalized messages occasionally to a person more effective at changing a person's behavior than non-interactive methods, such as the placement of warning signs, labels, or ads in prominent positions?



Which is Most Effective?



31



Tracking devices

- ❖ Mobile apps designed to help people monitor and change their behaviour (e.g. fitness, sleeping, weight)
- ❖ Can compare with online leader boards and charts, to show how they have done in relation to their peers and friends
- ❖ Also apps that encourage reflection that in turn increase well-being and happiness



33

Energy Reduction



34

The Tidy Street project

- ❖ Large-scale visualization of the street's electricity usage
 - Provided real-time feedback that all could see change each day
 - Reduced electricity consumption by 15%



Figure 5.13 Looking down at the Tidy Street public electricity graph from a bedroom window



35

Phishing (التصيد) and Trust

- ❖ Web used to deceive people into parting with personal details.
 - e.g. Paypal, eBay and won the lottery letters.
- ❖ Allows Internet fraudsters to access their bank accounts and draw money from them.
- ❖ Many vulnerable (غير حصين) people fall for it.
- ❖ The art of deception is centuries old but internet allows ever more creative ways to trick people.



36

Anthropomorphism **Humanization**

- ❖ Attributing human-like qualities to objects (e.g. cars, computers).
- ❖ Well known phenomenon in advertising.
 - Dancing butter, drinks, breakfast cereals.
- ❖ Much utilized in human-computer interaction.
 - Make user experience more enjoyable, more motivating, make people feel at ease, reduce anxiety.



37

Which do you prefer?

1. As a welcome message:

- ❖ *“Student 1234567, start exercise 5.”*
- ❖ *“Hello Abass! Nice to see you again. Welcome back. Now what were we doing last time? Oh yes, exercise 5. Let’s start again.”*



38

Which do you prefer?

2. Feedback when get something wrong:

- ❖ *“Incorrect. Try again.”*
- ❖ *“No Abass, that’s not right. You can do better than that. Try again.”*

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

Why?



39

Evidence to support anthropomorphism

- ❖ Reeves and Naas (1996) found that computers that compliment and admire students in education software programs:

“Your question makes an important and useful distinction. Great job!”

- ➔ positive impact on them.
- ➔ Students were more willing to continue with exercises with this kind of feedback.



40

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 and say:
 - “Now Abass, 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)



41

Virtual Characters

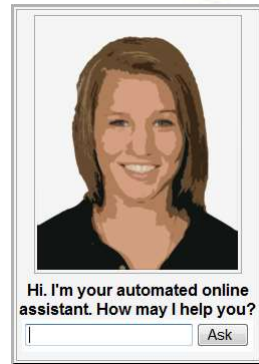
- ❖ Appearing on our screens in the form of:
 - Sales agents, characters in videogames, learning companions, wizards, pets, newsreaders.
- ❖ Provides a persona that is welcoming, has personality and makes user feel involved with them.



42

Disadvantages

- ❖ Can lead people into false sense of belief, inviting them to tell personal secrets with chatterbots.
- ❖ Annoying and frustrating.
 - e.g. Clippy.
- ❖ May not be trustworthy.
 - Virtual shop assistants?



Virtual Agents

- ❖ What do the virtual agents do?
- ❖ Do they elicit an emotional response in you?
- ❖ Do you trust them?
- ❖ What is the style of interaction?
- ❖ What facial expression do they have?
- ❖ Are they believable, pushy, helpful?
- ❖ Would it be different if they were male? If so, how?



What makes a virtual agent believable?

- ❖ 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?



45

What makes a virtual agent believable?

- ❖ **Behavior** 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 (c.f. animation industry)



46

Robot-like or cuddly?

❖ Which do you prefer and why?



47

Claims from model

- ❖ Our emotional state changes how we think.
 - When frightened or angry we focus narrowly and body responds by tensing muscles and sweating.
 - ➔ more likely to be less tolerant
 - When happy we are less focused and the body relaxes.
 - ➔ more likely to overlook minor problems and be more creative



48

Implications

- ❖ Should we, therefore, create products that adapt according to people's different emotional states?
 - When people are feeling angry should an interface be more attentive and informative than when they are happy?
- ❖ Is Norman right?
 - designers "*can get away with more*" for products intended to be used during free time than those designed for serious tasks.



49

Summary

- ❖ Emotional interaction is 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 the attribution of human qualities to objects.
- ❖ An increasingly popular form of anthropomorphism is to create interface agents and robot pets.



50