CLEMSON
College of ENGINEERING, COMPUTING AND APPLIED SCIENCES

Emotion

9/20/18

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Overview

- Emotions and the user experience
- Expressive and annoying interface
  - how the ‘appearance’ of an interface can affect users
- Models of emotion
  - Ortony et al (2005)
- Automatic emotion recognition and emotional technologies
- Persuasive technologies and behavioral change
  - how technologies can be designed to change people’s attitudes and behavior
- Anthropomorphism
  - The pros and cons

Emotions and the user experience

- HCI has traditionally been about designing efficient and effective systems
- Now more about how to design interactive systems that make people respond 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

Emotional interaction

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

Emotional design model

Norman, Ortony and Revelle (2004) model of emotion

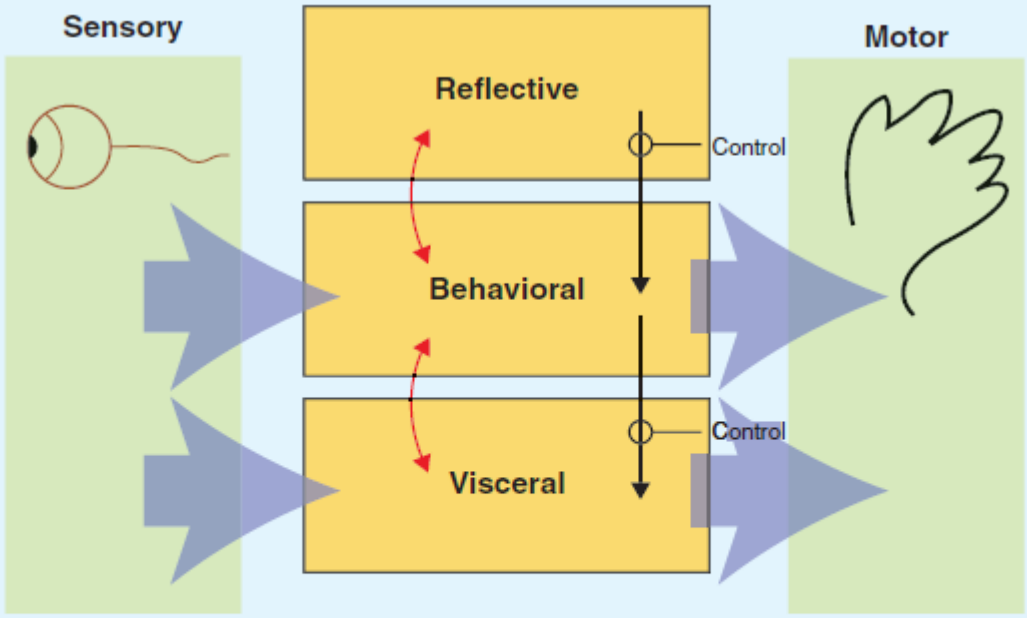


Figure 5.2 Ortony *et al*'s (2005) model of emotional design showing three levels: visceral, behavioral, and reflective

Source: The illustration and text are from Figure 1.1 of Norman, D. A. (2004). *Emotional Design: We love (or hate) everyday things*. New York: Basic Books. Reprinted with permission of the author.

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

Expressive interfaces

- Provide reassuring feedback that can be both informative and fun
- But can also be intrusive, 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 and aesthetic

Memoji

Friendly interfaces

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

- 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

Bob

Figure 5.6 'At home with Bob' software developed for Windows 95. Although now defunct, it has been resurrected affectionately to run on a Virtual PC platform

Source: Microsoft product screenshot reproduced with permission from Microsoft Corporation.

Clippy

Why was Clippy disliked by so many?

Was it annoying, distracting, patronising or other?

What sort of user liked Clippy?

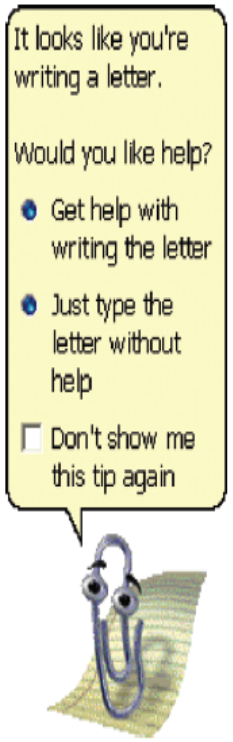


Figure 5.7 Microsoft's agent Clippy

Source: Microsoft product screenshot reproduced with permission from Microsoft Corporation.

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
- When error messages pop up that are vague, obtuse or condemning
- When the appearance of an interface is garish, noisy, gimmicky 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

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 messages

Error 404 – Web Page Not Found

Error!

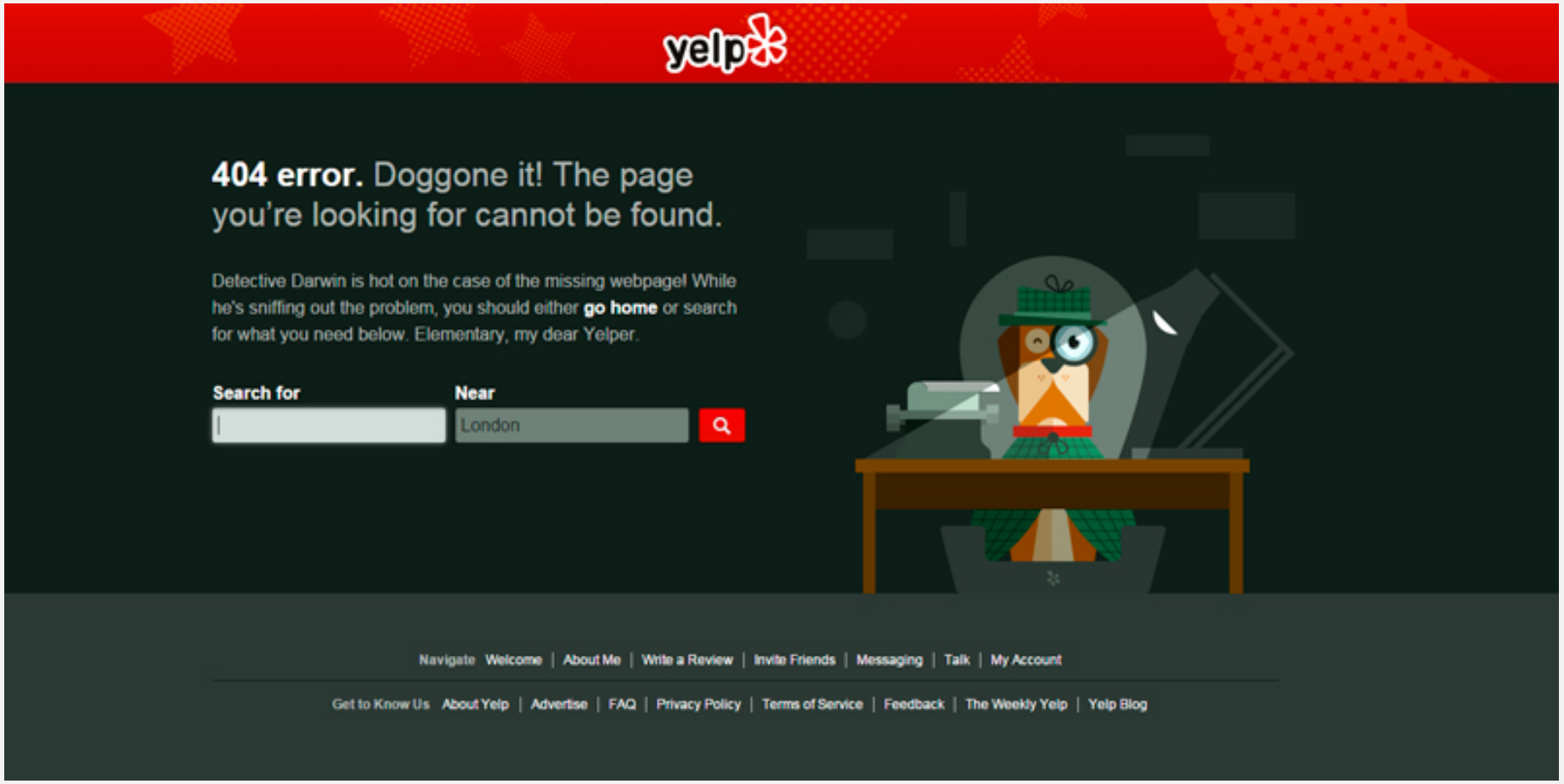
Your login information is incorrect...

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

Return To Previous Page

Figure 5.8 An error message that appears if a user types in his or her personal details for accessing the protected website incorrectly

More helpful error message?



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?

Detecting emotions and emotional technology

- Sensing technologies used to measure GSR, facial expressions, gestures, body movement
- 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

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 gauge how engaged the user is when looking at movies, online shopping sites and ads
- 6 core expressions - sadness, happiness, disgust, fear, surprise and anger

Figure 5.9 A screen shot showing facial coding from Affdex software

Source: Courtesy of Affectiva, Inc.

How to use the emotional data?

- If user screws up their 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

Persuasive technologies and behavioral change

- Interactive computing systems deliberately designed to change people's attitudes and behaviors (Fogg, 2003)
- Can be good and bad
- 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


Move
10:09
312
OF 600 CALS
Exercise
10:09
14
OF 30 MINS
Stand
10:09
3
OF 12 HRS
Workout
10:09
Running
Last: 8.0 Miles
September 6, 2014
Walking
Cycling
Activity
10:09
MOVE
EXERCISE
STAND

Do they work? Why or why not?

Phishing 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 people fall for it
- The art of deception is centuries old but internet allows ever more ingenious ways to trick people

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

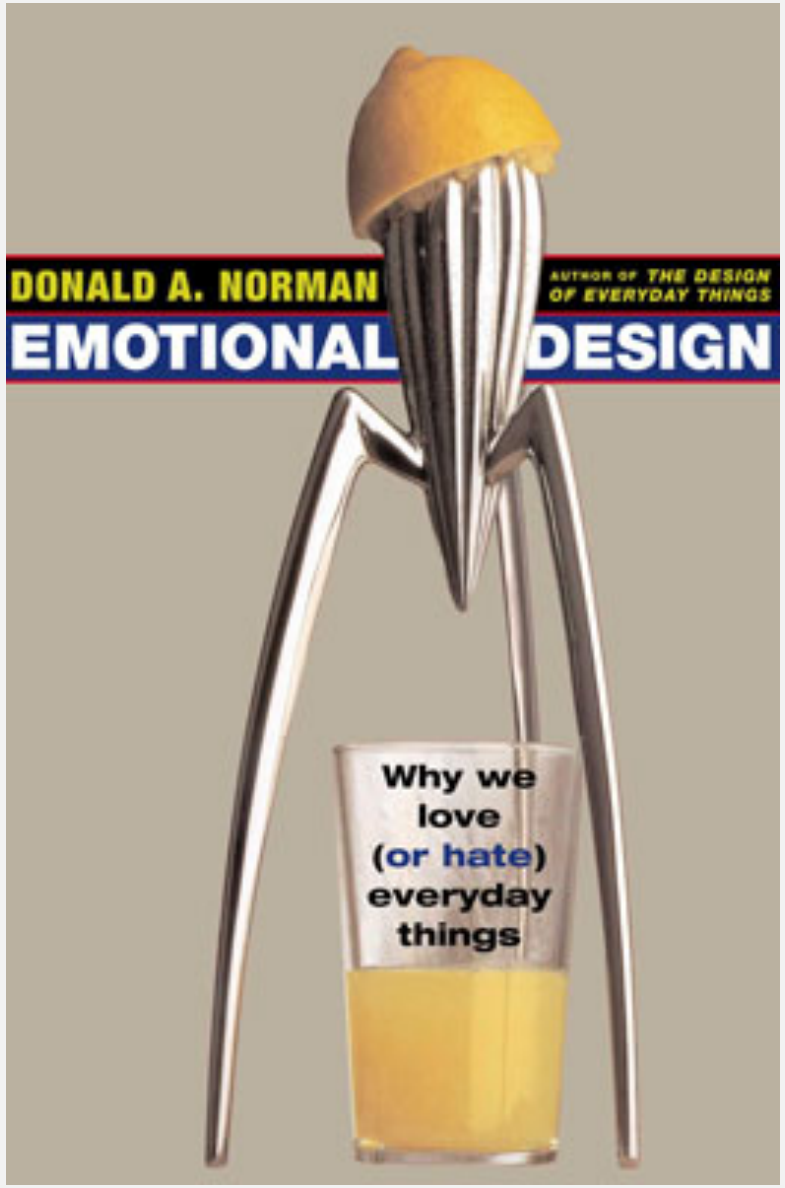
- Deceptive, make people feel anxious, inferior or stupid
- People tend not to like screen characters that wave their fingers at the user and say:
  - Now Chris, that’s not right. You can do better than that. Try again.”
- Many prefer the more impersonal:
  - “Incorrect. Try again.”
- Studies have shown that personalized feedback is considered to be less honest and makes users feel less responsible for their actions (e.g. Quintanar, 1982)

Implications

- Should we 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 leisure time than those designed for serious tasks

Summary

- Emotional aspects of interaction design concerned with how to facilitate certain states (e.g. pleasure) or avoid reactions (e.g. frustration)
- Well-designed interfaces can elicit good feelings in people
- Aesthetically pleasing interfaces can be a pleasure to use
- Expressive interfaces can provide reassuring feedback to users
- Badly designed interfaces make people frustrated, annoyed, or angry
- Emotional technologies can be designed to persuade people to change their behaviors or attitudes
- Anthropomorphism is the attribution of human qualities to objects


DONALD A. NORMAN
AUTHOR OF THE DESIGN OF EVERYDAY THINGS
EMOTIONAL DESIGN
Why we love (or hate) everyday things

Reading for next class...

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