



# CSAI 312 Human Computer Interaction

## Chapter 6: Emotional Interaction

By the end of this section, you will be able to:

- Explain how our emotions relate to behaviour and the user experience.
- Explain what are expressive and annoying interfaces and the effects they can have on people.
- Introduce the area of emotion recognition and how it is used.
- Describe how technologies can be designed to change people's behaviour.
- Provide an overview on how anthropomorphism has been applied in interaction design.

# Emotions and User Experience

- HCI has traditionally been about designing efficient and effective systems.
- Know more about how to design interactive systems that make people respond in certain ways
  - For example, to be happy, to be trusting, to learn, or to be motivated
- Emotional interaction is concerned with how we feel and react when interacting with technologies.
- Affective computing is improving with better recognition software and machine learning algorithms
- Emotional interaction is concerned with what makes people feel happy, sad, annoyed, anxious, frustrated, motivated, delirious, and so on, and then using this knowledge to inform the design of different aspects of the user experience.

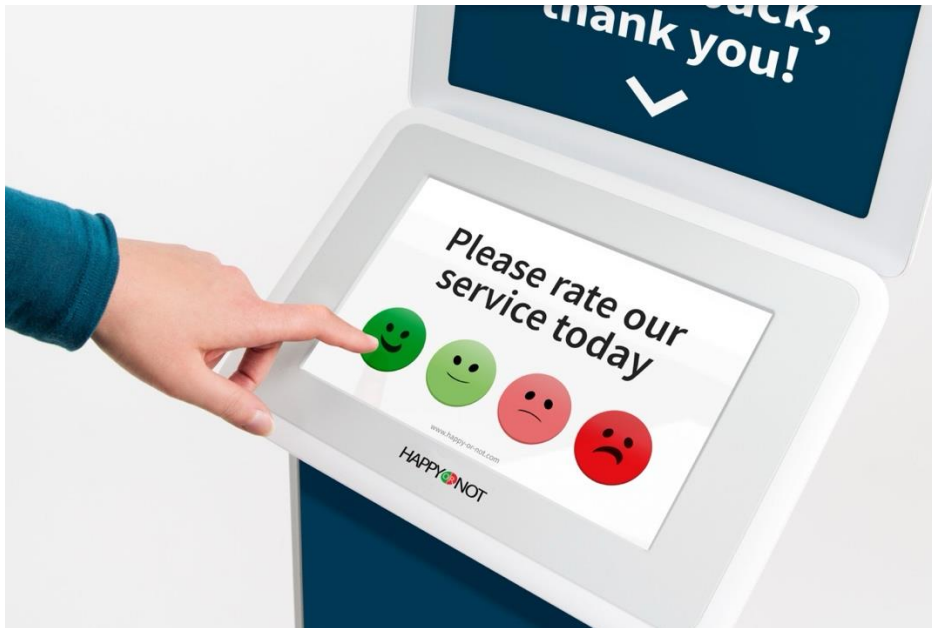
# Activity

- Try to remember the emotions you went through when buying a big-ticket item online (for example, a refrigerator, a vacation, a computer)

How many different emotions did you go through?



# Why has this simple way of obtaining visitor feedback been so effective?



We needed a quick and simple method to understand our passengers' feedback on a day-to-day basis, allowing us to understand their perception of the security process with a voluntary process, and building a clear picture over time of changing trends in passenger feedback. "Airport Team"

The act of pressing one of the buttons can be very satisfying providing a moment for you to reflect upon your experience

# Emotional Advertising

# Activity

- When was the last time you purchased something that you didn't need but at the time felt like buying?

Emotional advertising refers to the relationship between a customer and a brand or a product, particularly the emotional connection that appeals to the customer's emotional state, ego, needs, fears and aspirations through content.





# Emotional Advertising

- Advertising agencies have developed a number of techniques to influence people's emotions.
- Emotional advertising helps create long-term customers.
- The goal is to make people feel sad or upset at what they observe and make them want to do something to help, such as by making a donation.
- The loyalty of customers is salient for a business. People give more importance to emotions than any other rational ideologies. It is a demanding task to create customers and also to retain them. Customer retention is the predominant marketing strategy through **emotional appeal advertising**.



# Emotional Advertising

## How Consumers' Emotions Affect Brands



EMOTION	Happiness	Sadness	Surprise and fear	Anger and passion	Recognized and Special
ACTION	Share	Empathize and connect	Stay in our comfort zone	Be stubborn	Deepen connections
IMPACT ON BRAND	Increased brand awareness	Increased giving	Increased brand loyalty	Viral content and loyal followers	Increased virality/word-of-mouth marketing to like-minded customers

Consumers' emotions towards achieving the goals of the business. To achieve success and stay profitable, you must create a relationship with the customers, the one that they take to heart. Standing out and developing a difference through **emotional ads** helps a lot. There can be a lot of understanding with the customers when you genuinely try to connect with their emotions. People also share information with others if they feel connected with anything. In the same way, they share information about your business with others and help increase your customer base. A friend or a neighbour buys something, and the others also want to follow suit.

# Happiness

[https://www.youtube.com/watch?v=lqT\\_dPApj9U&t=44s](https://www.youtube.com/watch?v=lqT_dPApj9U&t=44s)



Who doesn't want to be happy? It is that emotion that can be easily passed on to others too. Everyone wants a solution to their problem, and as a business, when you present your ideas as a solution, they readily accept it with happiness. For example, Coca-Cola's happiness campaign, 'Choose happiness' in 2015, is one of the best emotional advertisements. It shows that the company wants consumers to share their happy memories.

# Sadness

A close-up photograph of a woman holding a baby. The baby is crying with its mouth wide open and eyes squeezed shut. The woman's face is partially visible, looking down at the baby with a concerned expression. The background is blurred, suggesting an outdoor setting.

HE'S SO SICK,  
**HE COULD DIE**  
BEFORE YOU GET  
TO WORK.

A baby like Nirob dies every six minutes in Bangladesh because healthcare is out of reach. But, right now, you can give £5 to help build a life-saving clinic.

TEXT **BABY**  
TO **70008** NOW.

NO CHILD **BORN TO** DIE

 **Save the Children**

\*Text BABY to 70008 to donate £5 to build a life-saving clinic in Bangladesh or go to [www.savethechildren.org.uk](http://www.savethechildren.org.uk). You will be asked the amount and your mobile phone number. You can donate any amount. All donations to the UK charity go to the ground where we work. We cannot share donations around the world. If you want to help vulnerable children wherever the need is greatest, by sending the text you agree that we may contact you to help build our own charities, you will be asked to donate to one of our charities. If you want rather not receive such information please email us at [support@uk.savethechildren.org.uk](mailto:support@uk.savethechildren.org.uk) or phone 020 7312 4500 or text 57008 to 70008. Registered charity, England and Wales (211971). Scotland 004539.

This is another effective tool employed by businesses when they need to channel empathy and compassion. Generally, these advertisements are used for social issues and creating awareness. Making the consumers sad is not the motto; instead, the sadness created should motivate them towards helping or donating. Below is the emotional advertising example for the emotion, 'sadness'.



# Fear



Fear creates a sense of caution and makes people make responsible decisions. This kind of emotional targeting is also used mainly in social issues. For instance, creating awareness on global warming, harmful effects of smoking and drinking, etc.

# Trust



Nowadays, trust is one of the most effective triggers in emotional advertising, and many brands try to jump on the trust board in their ads. Before customers trust and buy from you repeatedly, you should persuade them to trust you by using emotional appeal advertising.

# Anger

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Brands use anger in ads to make customers exasperated over an issue and help find the solution for the same. Anger is a negative emotion but works positively well for the business when used correctly. Emotional advertising streamlines anger into necessary outcomes.

# Key Takeaway

- Creating an emotional bond with the consumers is essential to maintaining good, long-term ties.
- Emotional advertising creates a sense of belonging to the consumer. They feel they are the brand and identify their characters in it.
- Targeting emotions can help your business brand stay longer in the minds of consumers.
- Feelings that you induce can be both negative and positive. For example, fear or anger is a negative emotion but can create an impact by making them feel.
- The happier the customer feels after reading your advertisement, the greater is the possibility of it being shared.
- Emotional appeal advertising is not only for improving profitability but also to take home some significant values.



# Key Takeaway

- Customers who stay longer can help generate more customers. They become your brand ambassadors.
- How you make them feel is very important, since they will not forget it easily.
- Emotional appeal advertising is not only for improving profitability but also to take home some significant values. For instance, to make people understand the harmful effects of smoking, pictures of those affected badly are circulated. This creates fear and helps you achieve the cause.

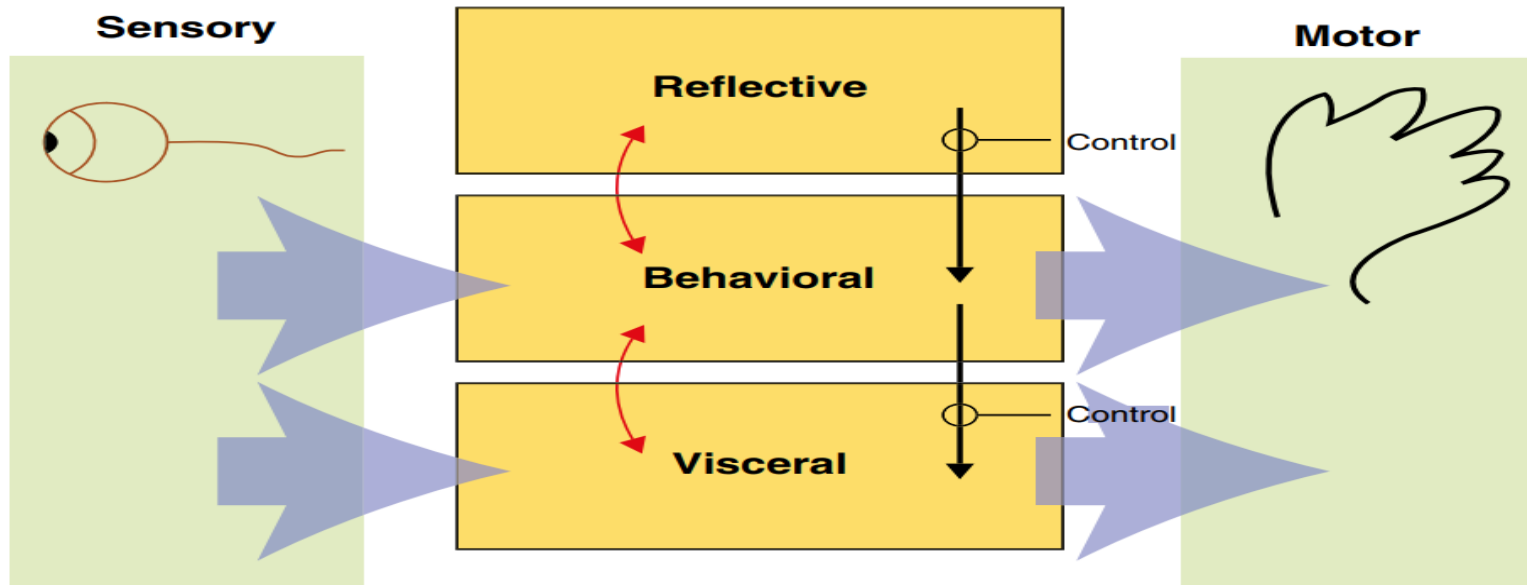
# Emotion and Behaviour

- Should an interface be designed to improve how we feel?
  - If so, how?
- Our moods and feelings are continuously changing
  - How does the interface keep track and know when to do something?
- What moods match which kinds of interfaces?
- How would you design an interface for when someone is happy, angry, sad, bored, or focused?

# How do emotions affect behaviours and vice versa?

- Does being angry make you concentrate better or more distracted?
- When you are happy do you take more risks, such as spend more money or buy more?
- Baumeister et al (2007) argue the relationship is more complex than a single cause-and-effect model

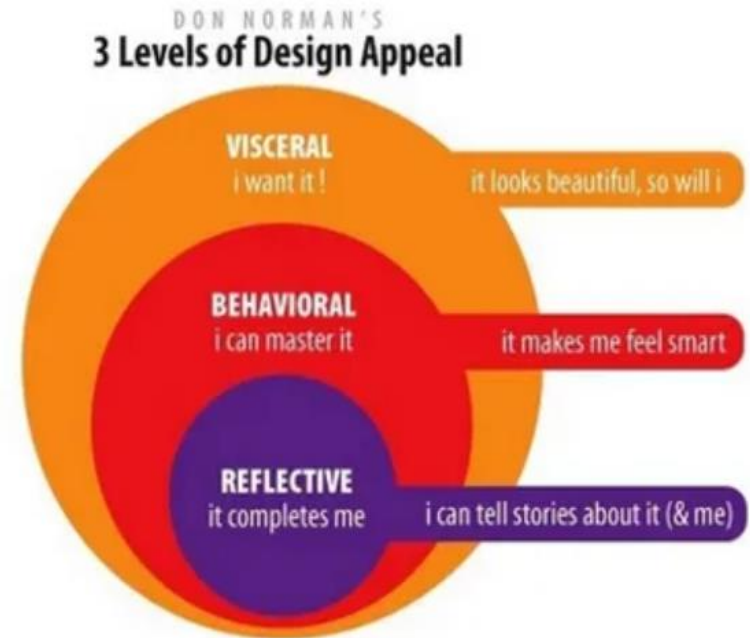
# Anthony Orthony Model of Emotional Design



- The **visceral level** responds rapidly, making judgments about what is good or bad, safe or dangerous, pleasurable or abhorrent. It also triggers the emotional responses to stimuli (for instance fear, joy, anger, and sadness) that are expressed through a combination of **physiological and behavioural responses**.
- The **behavioural level** is where most **human activities** occur.
- The **reflective level** entails conscious thought where people generalise across events or step back from their daily routines.

# Anthony Orthony Model of Emotional Design (Cont'd)

- **Visceral** design refers to making products look, feel, and sound good. **(Senses)**
- **Behavioural** design is about use, and it equates with traditional values of **usability**.
- **Reflective** design is about considering the **meaning** and **personal value** of a product.



# Example

- **Reflective Level** → The use of cultural images and graphical elements is designed to appeal to users.
- **Behavioural Level** → its affordances of use.
- **Visceral Level** → the brilliant colours, wild designs, and art attract users' attention.



## 1.Visceral Level:

1. **Design Elements:** The Apple Watch incorporates a sleek and minimalist design with high-quality materials. The use of a bright and sharp Retina display, smooth animations, and haptic feedback contributes to a visually appealing and tactile experience.
2. **Impact:** The visceral response is immediate as users are drawn to the watch's aesthetics and the quality of its materials. The goal is to create an initial positive and pleasurable reaction, making users feel attracted to the device.

## 2.Behavioral Level:

1. **Affordances of Use:** The Apple Watch is designed for ease of use with its touch-sensitive screen, digital crown for navigation, and a range of customizable complications and apps. It provides a seamless and intuitive user experience, allowing users to interact effortlessly with notifications, fitness tracking, and other functionalities.
2. **Impact:** The behavioral aspect focuses on user interaction and engagement. The watch's design and functionality are geared towards making it a practical and efficient tool in users' daily lives, fostering a positive and productive behavioral response.



### 3. Reflective Level:

1. **Personalization and Connectivity:** Users can personalize their watch faces, choose from various bands, and customize app layouts. The watch also facilitates connectivity with other Apple devices, enhancing the overall ecosystem. Additionally, features like health tracking and activity summaries encourage users to reflect on their well-being.
2. **Impact:** The reflective aspect involves users contemplating their preferences, habits, and health data. By providing tools for personalization and promoting a holistic view of users' activities, the Apple Watch encourages a reflective response, prompting users to think about their lifestyle choices and goals.

In this application of Orthony's 3 levels of emotions, the Apple Watch aims to create a positive visceral reaction through its design, foster efficient and satisfying interactions at the behavioural level, and encourage reflection on personal choices and well-being at the reflective level.

# Activity

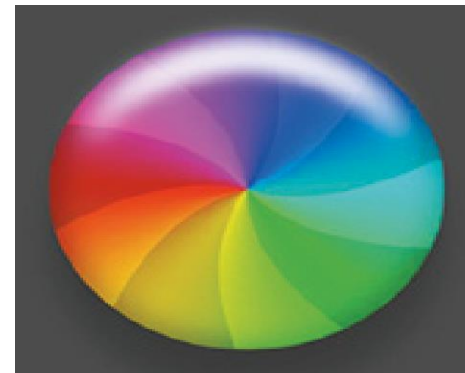
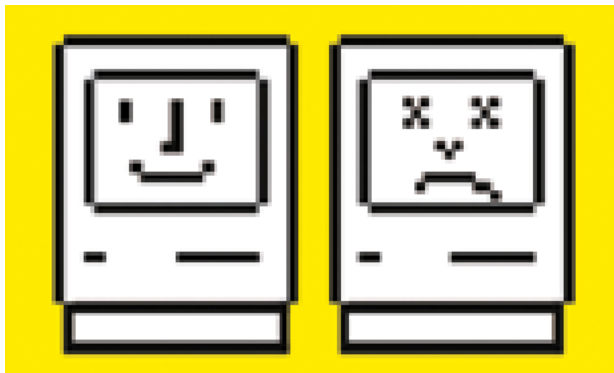
- From the perspective of Anthony Ortony model of emotional design, how do you design an interactive products that invoke visceral, behavioural and reflective senses.



# Expressive Interfaces and Emotional Design

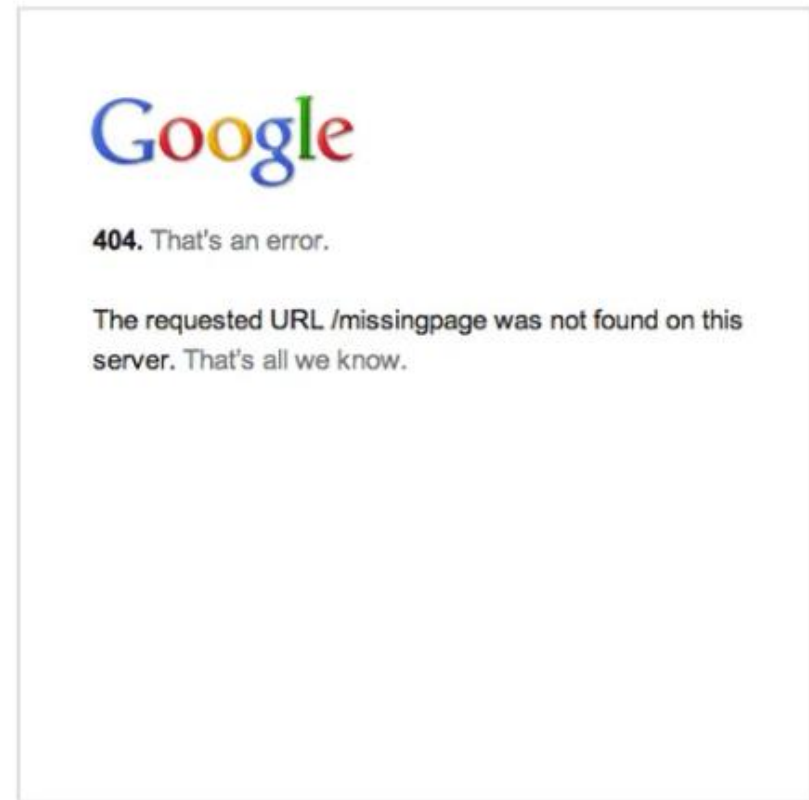
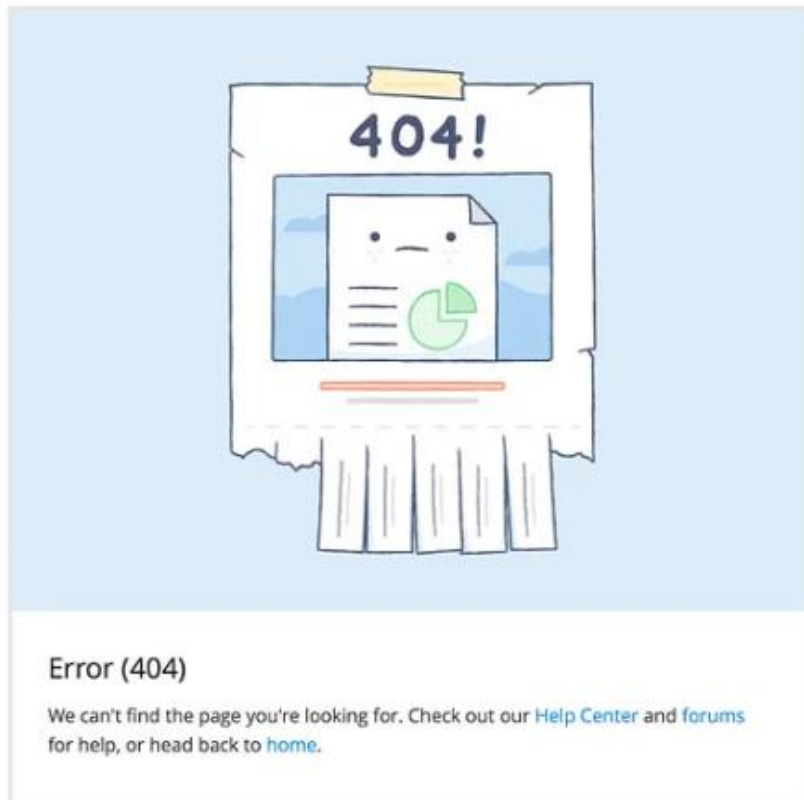
# Expressive Interfaces

- Designers use several features to make an interface expressive. Emojis, sounds, colours, shapes, icons, and virtual agents.
  - Create an emotional connection or feeling with the user (for instance, warmth or sadness) and/or
  - Elicit certain kinds of emotional responses in users, such as feeling at ease, comfort, and happiness.
- The expressive interface allows us to convey emotion, to provide satisfaction with empathy and to delight with contextually-aware illustrations and animations. Harnessing these techniques wins trust and helps us to create a user-centric environment for our interactive processes.



- Provide reassuring feedback that can be both informative and fun.
- Can also be intrusive, however, causing people to become annoyed and even angry.
- 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 (for instance, slow download rate) if the end result is appealing and aesthetic

# Example



## Good Interface:

- Illustrations add human characteristics.
- Concise, understandable explanation.
- Offers pragmatic, contextual advice.

## Bad Interface:

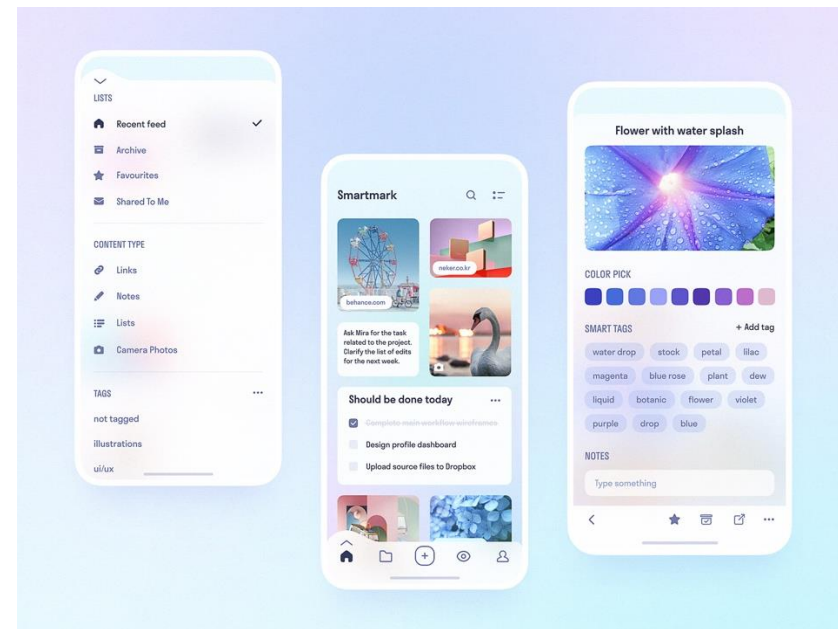
- No frustration relieving technique.
- Verbose, technological explanation.
- Offers no advice or solution.

## Ways of conveying expressivity include:

- ☐ Animated icons
- ☐ Sonification indicating actions (sounds)
- ☐ Vibrotactile feedback
- ☐ A designer can also use several aesthetic techniques such as clean lines, balance, simplicity, white space, and texture.
- ☐ Animated icons (for example, a recycle bin expanding when a file is placed in it and paper disappearing in a puff of smoke when emptied)
- ☐ Sonification indicating actions and events (such as whoosh for a window closing, “schlook” for a file being dragged, or ding for a new email arriving)
- ☐ Vibrotactile feedback, such as distinct smartphone buzzes that represent specific messages from friends or family

# Aesthetically Interfaces

- Aesthetics of an interface can have a positive effect on people's perception of the system's usability.
- People are likely to be more tolerant and prepared to wait a few more seconds for a website to download.
- Good-looking interfaces are generally more satisfying and pleasurable to use.





# Example

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# Design of Website to be aesthetic

<https://www.nexcess.net/blog/website-aesthetics/#:~:text=Fully%20Managed%20Hosting-,What%20is%20Website%20Aesthetic%3F,imagery%2C%20interactivity%2C%20and%20more.>

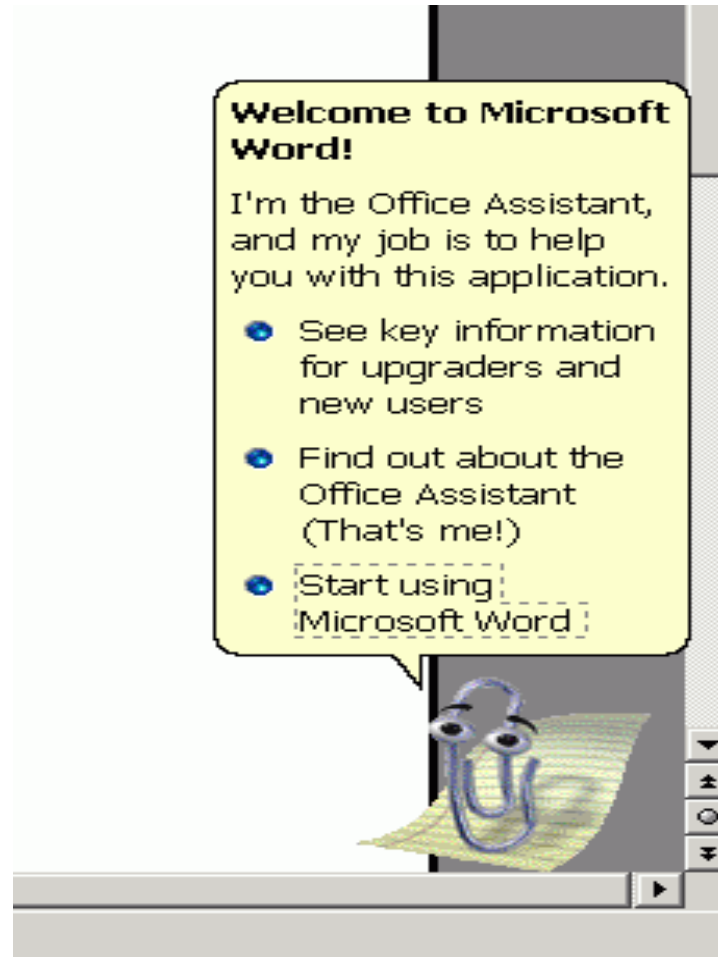
# Annoying Interfaces

# Annoying Interfaces

In many situations, interfaces may inadvertently elicit negative emotional responses, such as anger.



# Annoying Interfaces



# IKEA's Anna Vs Chatbot

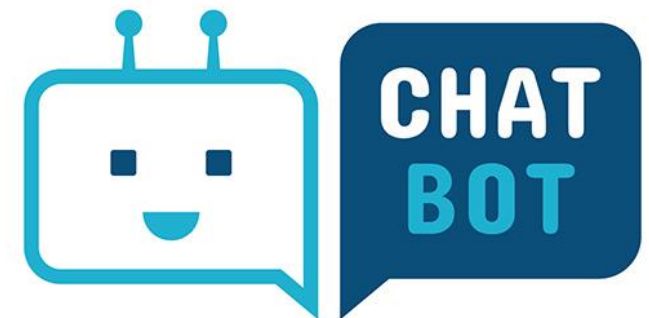


Figure 1.8: Anna the online sales agent. designed to be s

# Annoying Interfaces (Cont'd)

- There are many situations that cause such negative emotional responses:
  - ☐ 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 let the user know what to do
  - ☐ When error messages pop up that are vague or obtuse
  - ☐ When the appearance of an interface is too noisy, garish, gimmicky, or patronising

- There are many situations that cause such negative emotional responses:
  - ❑ When a system requires users to carry out too many steps to perform a task, only to discover a mistake was made somewhere along the line and they need to start all over again
  - ❑ Websites that are overloaded with text and graphics, making it difficult to locate desired information and resulting in sluggish performance
  - ❑ Flashing animations, especially flashing banner ads and pop-up ads that cover the user view and which require them to click in order to close them



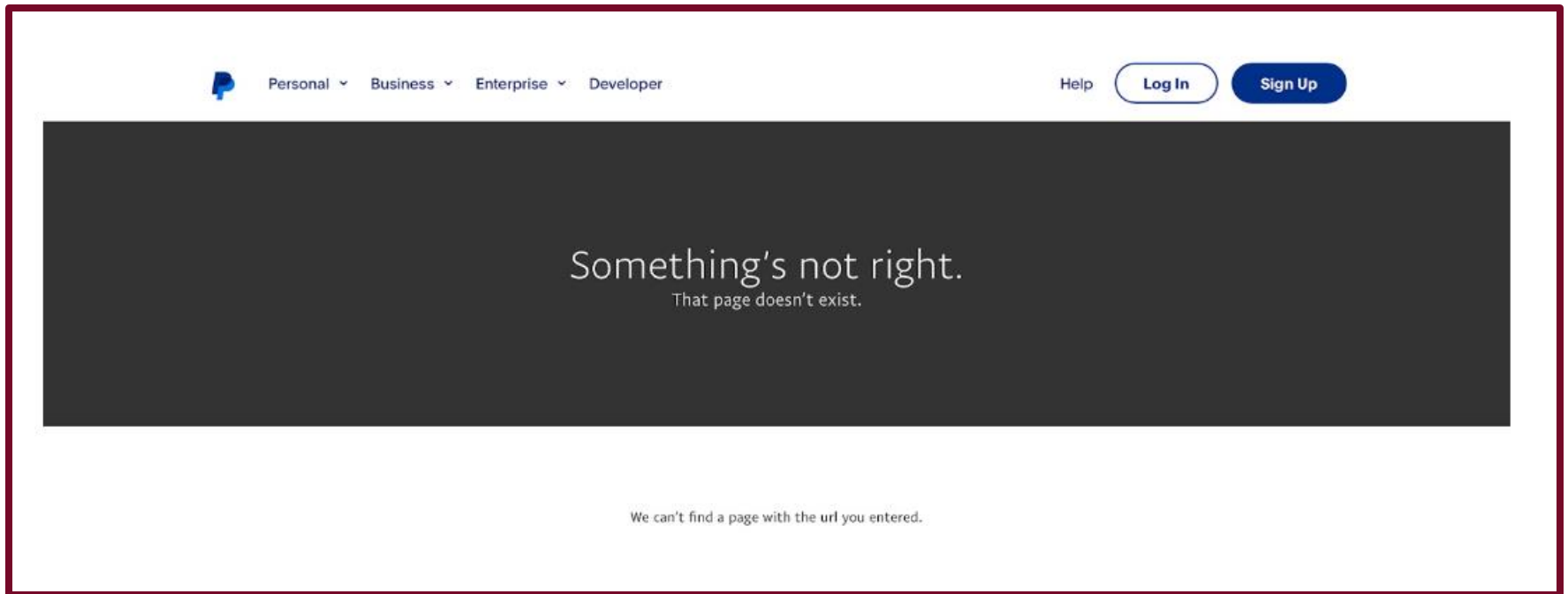
- There are many situations that cause such negative emotional responses:
  - ❑ The overuse or automatic playing of sound effects and music, especially when selecting options, carrying out actions, running tutorials, or watching website demos
  - ❑ Featuritis—an excessive number of operations, such as an array of buttons on remote controls
  - ❑ Poorly laid-out keyboards, touchpads, control panels, and other input devices that cause users to press the wrong keys or buttons persistently

- ❑ Most people are familiar with the “404 error” message that pops up now and again when a web page does not upload for the link they have clicked or when they have typed or pasted an incorrect URL into a browser. What does it mean and why the number 404?

**Is there a better way of letting users know when a link to a website is not working? Might it be better for the web browser to say that it was sorry rather than presenting an error message?**



# 404 Error Message



# 404 Error Message (Cont'd)



This page isn't available. Sorry about that.  
Try searching for something else.



# 404 Error Message (Cont'd)

English ▾High ContrastContact Sales

Log inCustomer SupportAbout ▾

HubSpotSoftware ▾PricingResources ▾Start free or get a demo

## We're heartbroken we missed you.

But it doesn't look like a real page lives here.

Until we meet again, here are some ways to keep the spark alive ...

- Learn about the marketing, sales CRM, customer service, and content management software in HubSpot's CRM platform. [Get started here.](#)
- Stay ahead of the curve with the latest tips, trends, and news on the [HubSpot blog](#).
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Free Meeting Scheduler App	Sales Email Templates
Social Media Tools	Help Desk Software
Email Tracking Software	Free Online Form Builder
Sales Email Automation	Free Chatbot Builder
Ads Software	Free Live Chat Software
Email Marketing Software	Marketing Analytics

### Free Tools

- Website Grader
- Make My Persona
- Email Signature Generator
- Blog Ideas Generator
- Invoice Template Generator
- Marketing Plan Generator
- Free Business Templates

### Company

- About Us
- Careers
- Management Team
- Board of Directors
- Investor Relations
- Blog
- Contact Us

### Customers

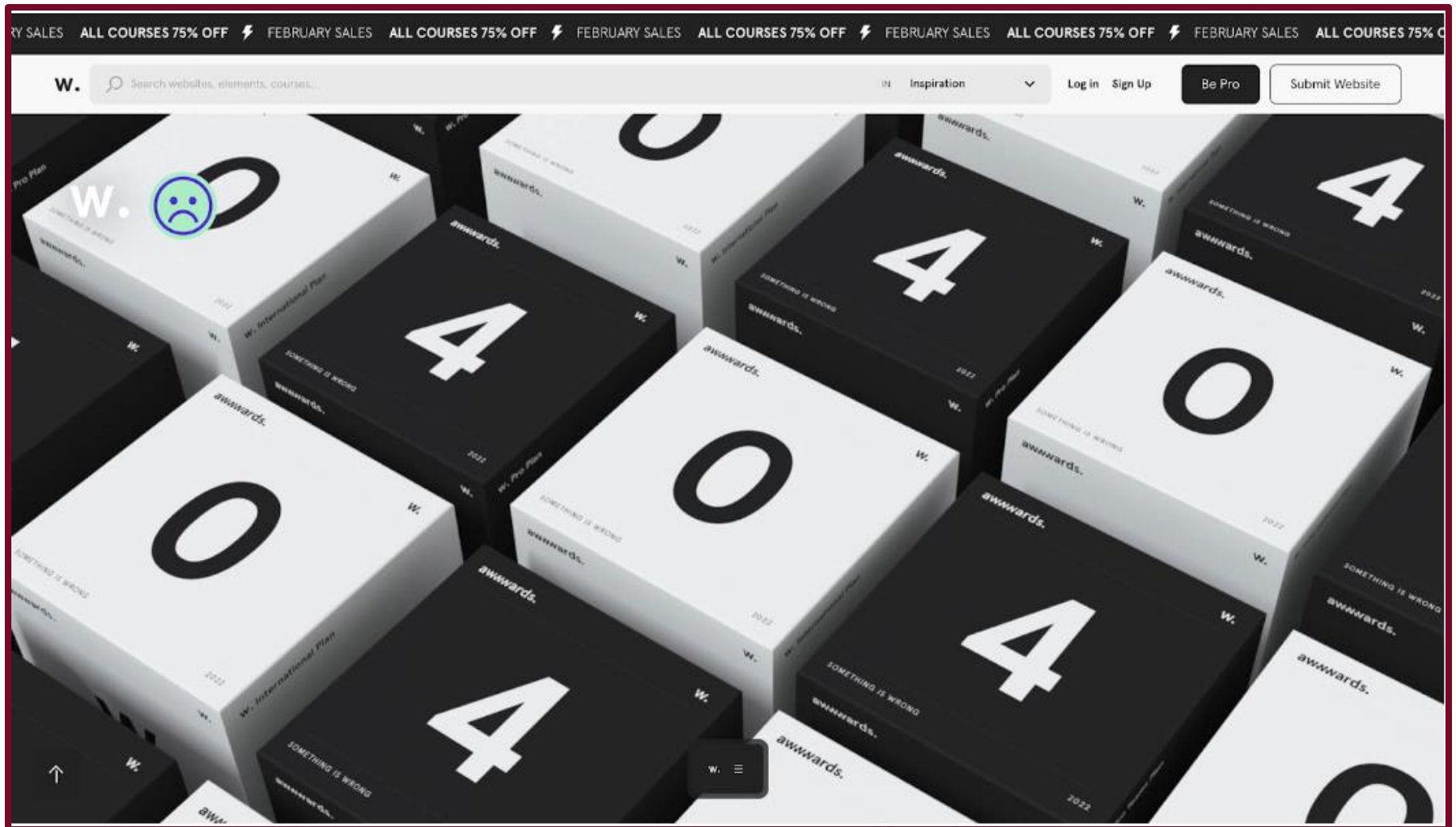
- Customer Support
- Join a Local User Group

### Partners

- All Partner Programs
- Solutions Partner Program

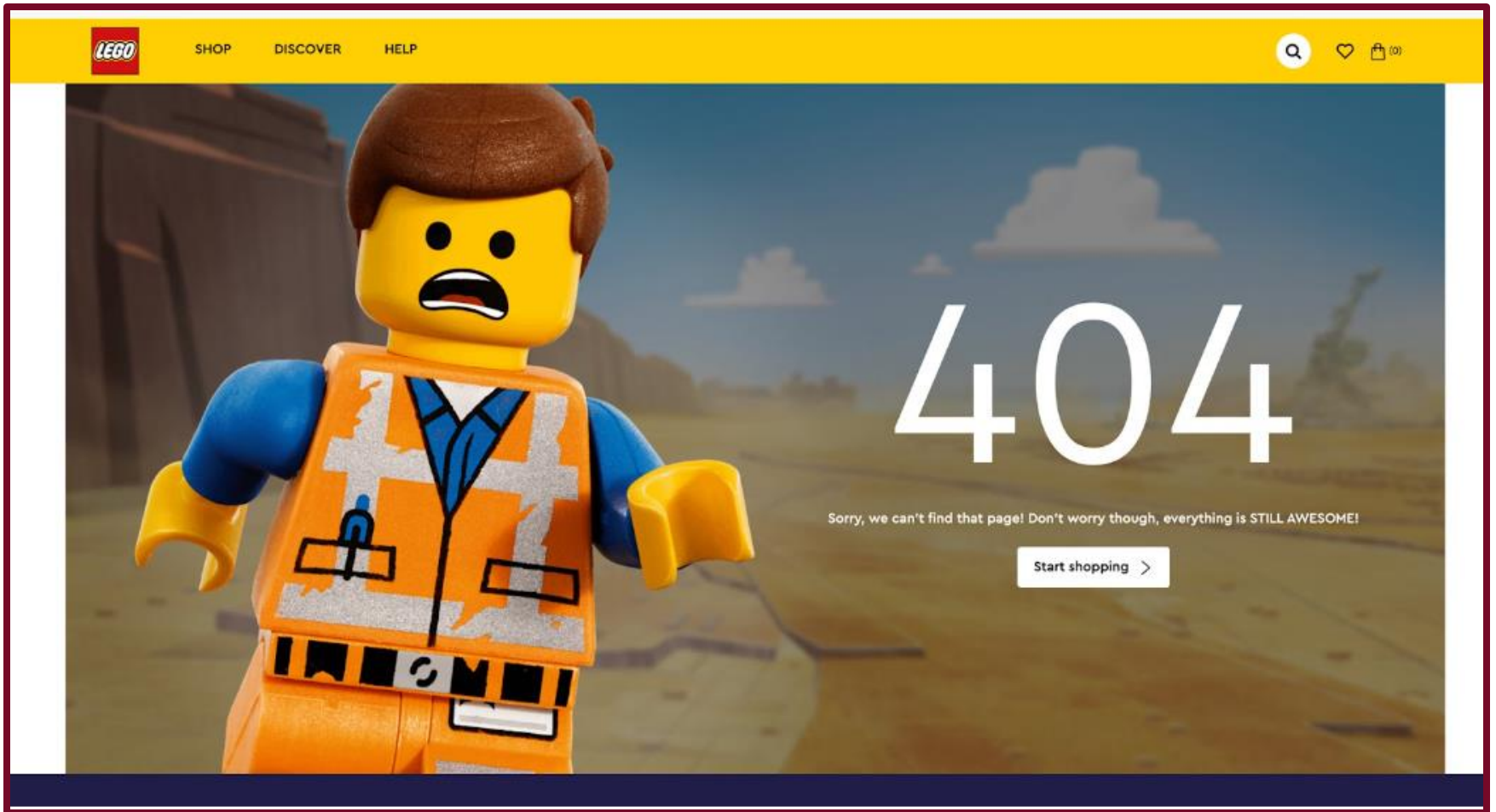
# 404 Error Message (Cont'd)

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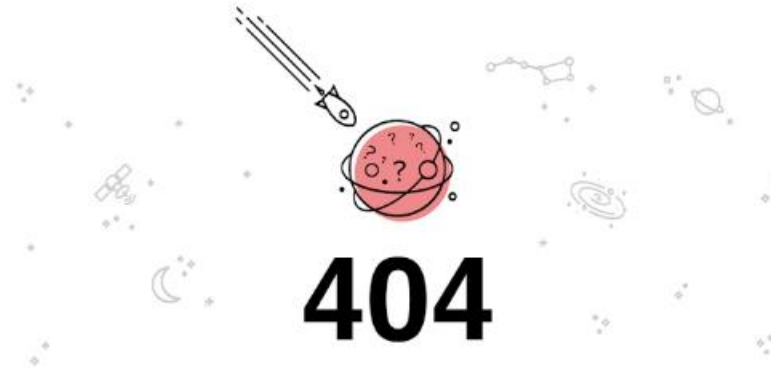


# 404 Error Message (Cont'd)

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# 404 Error Message (Cont'd)

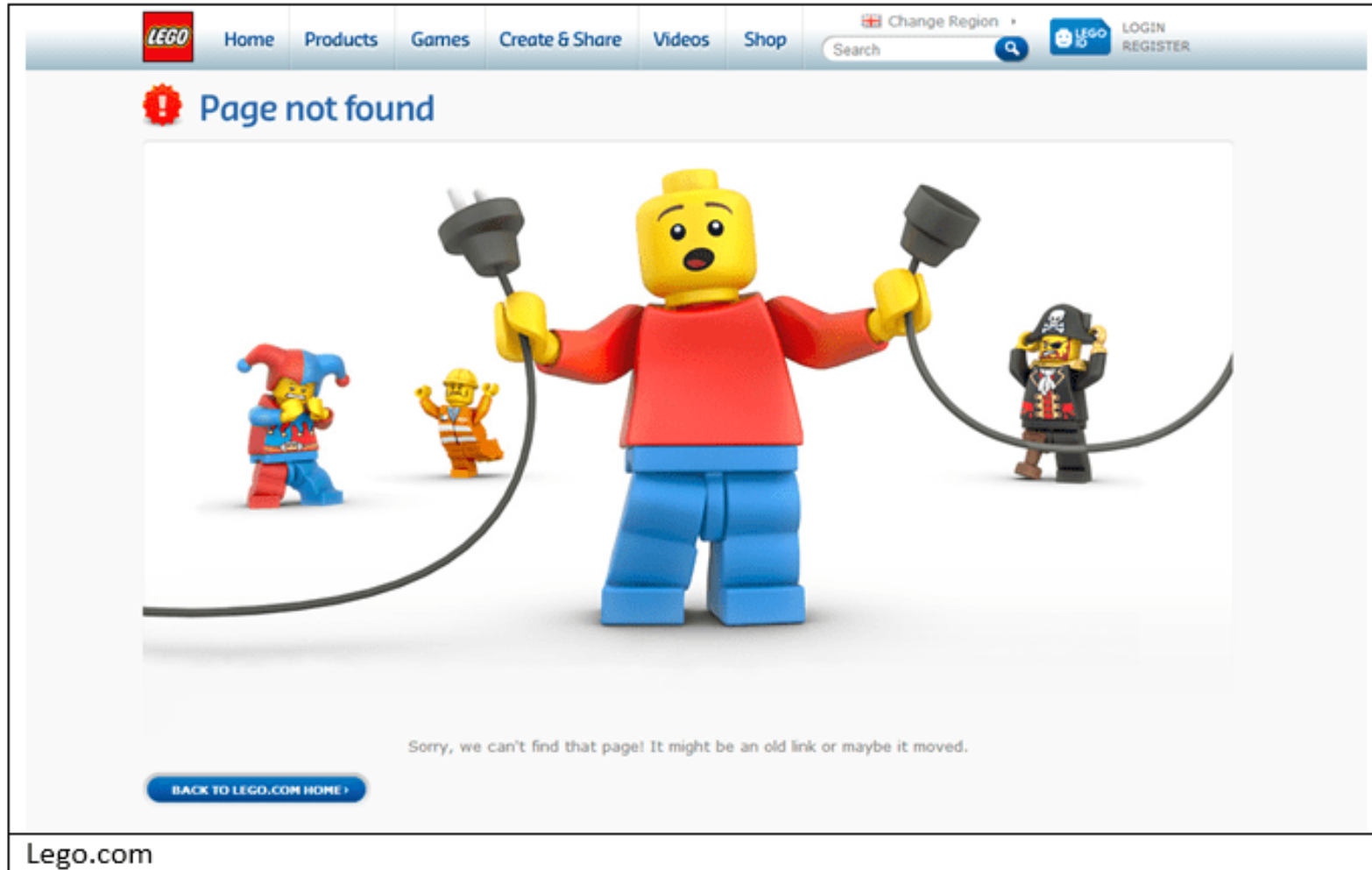


Hey captain! Looks like you're heading to a wrong planet!

[Take me back to the homepage](#)



# 404 Error Message (Cont'd)



# 404 Error Message (Cont'd)

Shneiderman's classic guidelines for error messages include:

- ☐ Avoid using terms like FATAL, INVALID, or BAD
- ☐ Audio warnings
- ☐ Avoid UPPERCASE and long code numbers
- ☐ Messages should be precise rather than vague
- ☐ Provide context-sensitive help

# Should Voice Assistants Teach Kids Good Manners?

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# Affective Computing and Emotional AI

# Affective Computing & Emotional AI

- ***Affective computing*** is concerned with how to use computers to recognise and express emotions as humans do (Picard, 1998).
- It involves designing ways for people to communicate their emotional states, through using novel, wearable sensors and creating new techniques to evaluate frustration, stress, and moods by analysing people's expressions and conversations.
- ***Emotional AI*** has emerged as a research area that seeks to automate the measurement of feelings and behaviours by using AI technologies that can analyse facial expressions and voice in order to infer emotions.

- The main techniques and technologies that have been used:
  - ❑ Cameras for measuring facial expressions.
  - ❑ Biosensors placed on fingers or palms to measure galvanic skin response (which is used to infer how anxious or nervous someone is as indicated by an increase in their sweat).
  - ❑ Affective expression in speech (voice quality, intonation, pitch, loudness, and rhythm).
  - ❑ Body movement and gestures, as detected by motion capture systems or accelerometer sensors placed on various parts of the body.

- Six fundamental emotions are classified based on facial expression:
  - ☐ Anger, Disgust, Joy, Sadness, fear, Contempt.
- Type of facial expression chosen by AI through detecting presence or absence of:
  - ☐ Smiling
  - ☐ Eye widening
  - ☐ Brow raising
  - ☐ Brow furrowing
  - ☐ Raising a cheek
  - ☐ Mouth opening
  - ☐ Upper-lip raising
  - ☐ Wrinkling of the nose

# Detecting and Reflecting on Moods

- Mobile mood tracker apps (e.g., Moodnotes, Daylio)
  - ☐ intended to help people keep track of their moods
  - ☐ to reflect more on why they might be feeling gloomy or cheerful
  - ☐ understanding their moods is assumed to help improve well-being.
- Virtual reality is also used to enable people to explore their moods (e.g. Mood Worlds)



# Activity

- ☐ Do you think it is ethical that technology is trying to read your emotions from your facial expressions or from what you write in your tweets and, based on its analysis, filter the online content that you are browsing, such as ads, news, or a movie to match your mood? Might some people think it is an invasion of their privacy?



# Persuasive Technologies and Behavioural Change

# Persuasive Technologies and Behavioural Change

- A diversity of techniques has been used at the interface level to draw people's attention to certain kinds of information in an attempt to change what they do or think.
  - ❑ Pop-up ads, warning messages, reminders, prompts, personalised messages, and recommendations.
- ***Persuasive technology*** is a technology that is designed to change attitudes or behaviours of the users through persuasion and social influence, but not necessarily through coercion.

# Persuasive Technologies

- Technology interventions have also been developed to change people's behaviours in other domains besides commerce, including safety, preventative healthcare, fitness, personal relationships, energy consumption, and learning.
- Nintendo's Pokémon Pikachu device was designed to motivate children into being more physically active on a consistent basis.



# Nintendo's Pokémon Pikachu

- Can interactive technologies that monitor, nag, or behave like a human keep them interested in looking after it and in doing so make themselves more fit?
- How does looking after a virtual pet change a child's behaviour?
  - ☐ Emotional attachment
  - ☐ Happy Pokémon makes them feel good
  - ☐ Sulking Pokémon makes them feel bad



# Persuasive Technologies and Behavioural Change

- Let's watch these videos:
  - ❑ <https://www.youtube.com/watch?v=bHLgSfxz6bQ>
  - ❑ <https://www.youtube.com/watch?v=cbEKAwCoCKw>
- Do you think that such playful methods are effective at changing people's behaviour?

# Tracking Devices

- HAPIfork is a device that was developed to help someone monitor and track their eating habits.
- Detects that they are eating too quickly, it will vibrate.
- A dashboard of graphs and statistics so that the user can see each week whether their fork behaviour is improving.



- Mobile apps designed to help people monitor and change their behaviour (for instance, fitness, sleeping, or weight).
- A survey of how people use such devices in their everyday lives revealed that people often bought them simply to try them or were given one as a present, rather than specifically trying to change a particular behaviour



# Anthropomorphism

- ***Anthropomorphism*** is the propensity people have to attribute human qualities to animals and objects.
- Advertisers are well aware of this phenomenon and often create human-like and animal-like characters out of inanimate objects to promote their products.
- Much exploited in human-computer interaction
  - ❑ Make user experience enjoyable and motivating
  - ❑ Make people feel at ease by reducing anxiety

# Anthropomorphism (Cont'd)

- People, especially children, have a propensity to accept and enjoy objects that have been given human-like qualities has led many designers to capitalize on it.
- Virtual agents and interactive dolls, robots, and cuddly toys.
- The toys were programmed to react to the child and make comments while watching TV or working together on a computer-based task.



# Activity

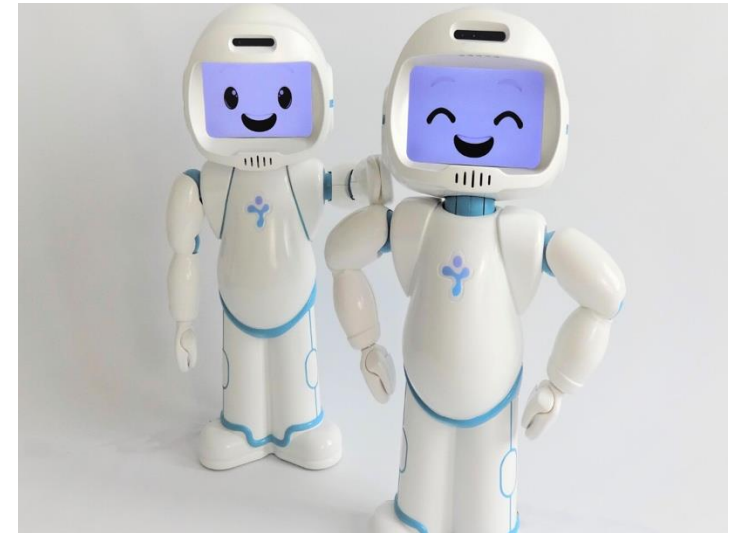
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## ☐ A Robot or a Cuddly Pet?



# Social Robots

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# Summary