EBU5305

Interactive Media Design and Production

Use of the media: Sound versus Graphics, Colour, Video, Animation, Text

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Use of media: main points

▶ Sound is active, not localised, and transient
▶ Graphics/Images are passive, localised and permanent
▶ Many uses of sound: meaning, changing states, navigation, etc.
▶ Speech: a special case of sound
▶ Colour perception is subjective
▶ Colour associations convey meaning
▶ Many uses of colour: decorating, grouping, highlight, etc.
▶ Video should be used only if there is a good reason!
▶ Animations are very powerful when they are meaningful
▶ Text is one of the most important media
▶ Text must be structured and consistent
▶ Hyperlinks must contain meta information

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Sound versus Graphics

▶ Sound is active (the user is passive), graphics is passive (the user is the active agent)

◦ The user must actively look around the visual space

◦ It is possible to overlook or miss elements presented as graphics

▶ Sound can cut in and interrupt the user's actions (intrusive and annoying)

▶ Removing intrusive sound from your perception is hard (trying not to hear something is very difficult)

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Sound versus Graphics

▶ Sound is non-localised, graphics are localised
◦ e.g. use of both media:
- sound to attract the user's attention to the fact that something needs looking at
- a flashing light to localise the attention to a particular object

▶ Sound is transient, graphics are permanent
◦ BUT:
- use of repetition or constant background sound
- graphics can be made to appear and disappear quickly

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Uses of sound

- Sounds with meaning (e.g. speech)

- Sounds for changing states

- Sounds for events

- Sounds for navigation

- Metaphorical sounds (sounds that sound like things from the real world)

Sound design

- Volume: a loud sound can easily shock or confuse

- Lead-in (or attack of the sound): could start quietly and gradually build up

- Length: sound can have a great impact on duration of the interaction

- Sound sets: should be coherent and consistent
  - e.g. same physical attributes (volume, pitch, length, etc.)
  - e.g. same theme

Speech

- A special case of sound (sound with very definite meaning)

- Words + Pronunciation, Speed, Tone

- Can function as a second channel

- Slow down the interaction (especially if cannot be interrupted)

- Can suffer from interference

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Sound and speech as primary interaction

▶ When the user's visual concentration is required elsewhere

▶ Applications for visually impaired users

▶ If no screen is available (e.g. telephone based)

➡ Text rules apply

➡ High load on the short-term memory

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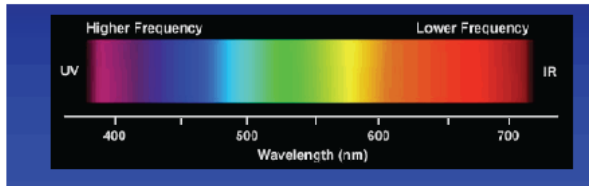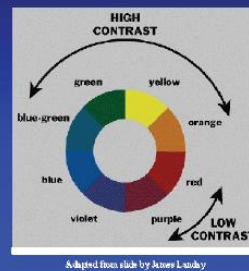▸ Hyperlinks must contain meta information

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Colour

Colour can be a powerful tool to improve user interfaces, but its inappropriate use can severely reduce the performance of the systems we build.

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Visible spectrum

Colours

⚠ Jarring colour combinations (the eye gets tired)
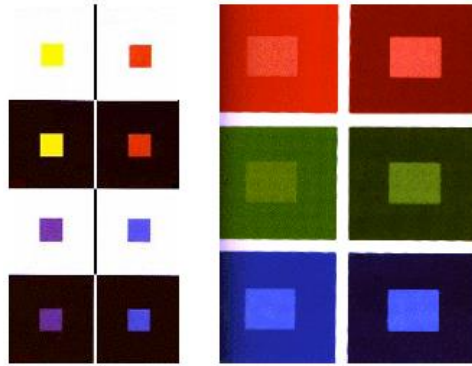 – e.g. complementary colours such as green and red

Complementary

• Use different levels of brightness to achieve contrast for details

Colour perception is subjective

Perception of colour is also determined by the physical context of the object (number, size, proximity and energy characteristics of other objects in the field of view).

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Colour perception is subjective

The brain has a major role in interpreting colour: perception of colour may be affected by previous experience and functioning of the brain.

The Stroop Effect

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Colour associations

- "In-built" colour associations
  - cool colours and vivid colours
  - yellow and black = warning

- Cultural associations

- Work associations (colour coding)

10 12 15 18
22 27 33 39
47 56 68 82

Question: what is wrong with this design?

Delete All Records

Are you sure you want to delete all records from the database?

Yes   No
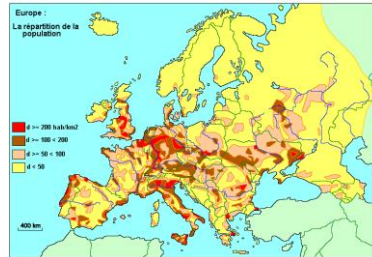
Uses of colour

- decorating
- grouping
- highlight
- colour codes (e.g. blue links)
- measuring (e.g. different densities)
- realism (shades, metal look, etc.)

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Uses of colour

 Not everybody can see colour in the same way
(colour blindness)

➡ There should always be some means other than colour
to convey the information

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Colour scheme

- A set of colours used for specific purposes in the design, e.g.
  - Key
  - Monochromatic
  - Complementary and adjacent

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Key colour scheme

- Use black and white, plus a single "key colour" to highlight important information such as hyperlinks, headings, or emphasised text, or to include graphical elements like rules or background shading.
- This is quite easy to do well.
- You simply need to choose one colour which is reasonably appropriate for your application

⚠ Make sure not to overuse the highlighting to the point where it's diluted.

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Monochromatic colour scheme

▶ Use variations of a single hue

▶ With different brightness or saturation

▶ e.g. if you need to use a coloured background to set apart some text

- use a low-saturation, bright (near-white) version of the colour as a background.

Complementary and adjacent colour schemes

- Complementary colours
  - Hues opposite on the colour wheel
  - Can provide a striking, distinctive colour scheme

- Adjacent colour schemes
  - Using colours near to each other on the colour wheel can produce a more subtle impression

Guidelines

- Restrict the number of colours used for decoration
  - Less than five ?
- Sometimes you need to use more colours
  - e.g. if you decide to colour-code sections
  - If you do this, you can usually avoid unpleasant clashes with several techniques:
    - Restrict the varied colours to small areas of the screen
    - Keep other parts of the screen neutral (black, white, and greys).
  - Use low-saturation colours (pastels or dark colours) for the colour-coding

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Question : decipher the colour codes
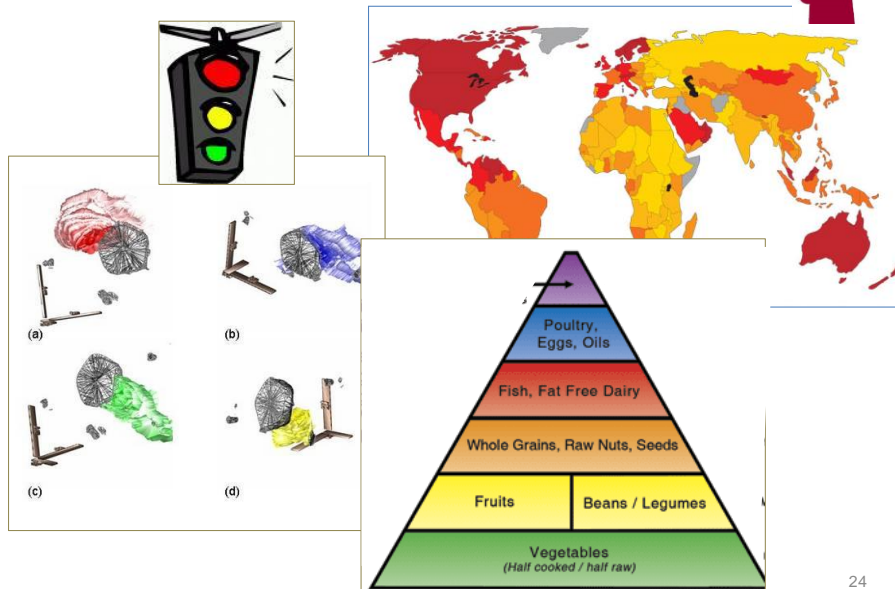
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Video – when to use?

▸ When it can say something that would be impossible to say with lighter-weight medium (graphics, photos or text)

  ◦ e.g. a video interview with someone is more telling than the text of the interview

▸ To show changes in real-time

  ◦ e.g. a web-cam set up overlooking the site of a grand construction project and streaming real-time images over the web (London Eye project)

▸ To demonstrate a process

  ◦ e.g. video clips of cookery techniques

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Video – issues

▶ Limits on bandwidth and storage imply a trade-off between size and quality (big and grainy vs small and clear)

- use of mono-sound instead of stereo-sound
- small image size
- editing

▶ Where to place? (in the page / in a separate context - popup)

▶ User interaction with videos

▶ Videos have their own pace (and the user loses control over the pace)

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Video controls

• Different controls are appropriate depending on the context, the length of the video, the message of the video and the user's task.

• Don't play immediately if in the page (provide a 'play' button)

• Can be played as soon as a separate context is presented (with clear labelling of links!)

• A 'stop' button is needed if lengthy video

• Both a 'play' and 'stop' button gives back the control of pace to the user

• Provide the suite of video controls available on a conventional video recorder only if relevant to the user's task

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Animation

• Simple animation can be a powerful communicator

• You can break the laws of physics!

• 'Aqua design': cartoon-type (virtual world where things flow and shift and expand and contract fluidly, as required)

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Animation – don't put too much!

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Text - properties

▸ Easy to generate

▸ Can easily be split up (in chunks and pages)

▸ Can easily be given a structure (e.g. using links)

▸ The content is easy for computers to analyse (can be indexed and searched)

▸ Easy to print out

▸ Accessible to non-sighted users (can be read out by screen-reading technologies)

▸ Fast to download

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Reading text

- There are several stages in the reading process:
  - 1. The visual pattern of the word is perceived.
  - 2. It is then decoded with reference to an internal representation of language.
  - 3. The final stages of language processing include syntactic and semantic analysis and operate on phrases or sentences.
- **Removing the word shape clues (e.g. by CAPITALISING words) is detrimental to reading speed and accuracy.**

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Use of fonts

▶ Limit the number of different typefaces to three or four. Must have a good reason to have more

▶ Be consistent in the use of fonts

▶ Select a font for body and another for headlines
  ◦ Use bold, italics, and different sizes of those fonts for captions, subheadings and other design elements
  ◦ You might add a fourth font for navigation bars

▶ Do not make sudden typeface changes within a paragraph

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Use of fonts
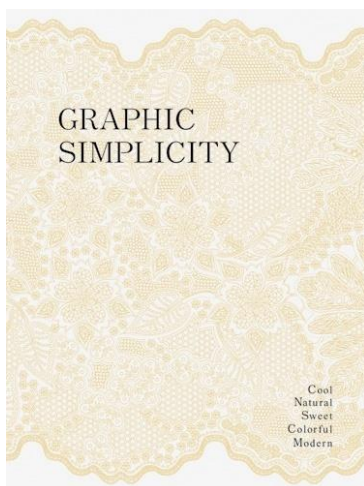
Text – how to structure

- 'Front loading'
  - e.g. <u>Text design</u> – This part of the information deals with the design of textual content in multimedia systems.

- Short paragraphs

- Many headings (short and to the point)

- Minimise scrolling

- Above and below "the fold"

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Text - consistency

▶ Especially important if numerous contributions, provided by different people or gathered over a period of time.

▶ Consistent "tone of voice" and style

▶ Consistent level of knowledge

▶ Consistent direction of address, e.g. :
  ◦ You can click on the button to delete the message
  ◦ I will delete the message when the button is clicked
  ◦ Clicking on the button will delete the message

▶ Consistent terminology (e.g. in links and titles)

➡ You must know your audience !

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Hyperlinks - examples

- More about the company:
  - Financial background
  - Management
  - History

- The company has a good financial grounding and is active in the export market.

- The company has a good financial grounding (financial information) and is active in the export market.

- The company has a good financial grounding (more information) and is active in the export market.

Hyperlinks

- Tell the user what the link points to:
  - external or internal document?
  - link to something big?
  - link to a sound?
  - does it require something that the user may not have?

  ➡ **Meta information**

Accessibility

- "The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect."

  Tim Berners-Lee

- Web Accessibility Initiative (WAI)

  - e.g. design for screen-reader technologies

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