



Thirteen Principles of Display Design

Éric Languénou

2012-2013



UNIVERSITÉ DE NANTES

References: source wikipedia HCI

- ▶ Understand the display principles by Wickens et al
- ▶ Apply the display principles in real life

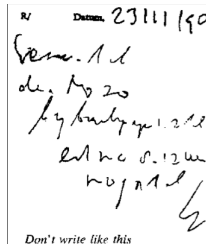
- ▶ Christopher Wickens et al.
defined 13 principles of display design
in their book "An Introduction to Human Factors
Engineering".

- ▶ These principles of human perception and information processing can be utilized to create an effective display design.
- ▶ Improvements
 - ▶ a reduction in errors,
 - ▶ a reduction in required training time,
 - ▶ an increase in efficiency, and
 - ▶ an increase in user satisfaction.

- ▶ Certain principles may not be applicable to different displays or situations.
- ▶ Some principles may seem to be conflicting, and there is no simple solution to say that one principle is more important than another.
- ▶ The principles may be tailored to a specific design or situation.
- ▶ Striking a functional balance among the principles is critical for an effective design

1 – Displays should be legible

- ▶ is that legible?



- ▶ If the characters or objects being displayed cannot be discernible, then the operator cannot effectively make use of them.

2 – Avoid Absolute Judgment Limits

- ▶ avoid making the operator judge the represented variable level on the basis of a single sensory dimension (color, size, pitch, etc.)

3 – Top-Down Processing

- ▶ signals are perceived and interpreted based on operator's past experience

4 – Redundancy Gain

- ▶ presenting a signal in more than one way increases the likelihood it will be interpreted correctly
 - ▶ ex: NO TURN ON RED



5 – Similarity causes confusion: Use discriminable elements

- ▶ similar appearing signals are likely to be confused
 - ▶ ex: Speed or RPM?



6 – Principle of Pictorial Realism

- ▶ Display looks like the variable it represents
- ▶ Configural Displays – elements are configured in same manner as environment it represents
 - ▶ Some "Door Ajar" indicators not only tell you that the door is open, but show you which one

7 – Principle of the Moving Part

- ▶ Moving elements should move consistently with the user's mental model
- ▶ The tape indicator moves in the same direction the tape is playing to make it easier to know whether to FF or REW

8 – Minimize Information Access Cost

- ▶ frequently accessed sources of info should be readily available
 - ▶ Ex: right mouse button brings up menu of the same common commands

9 – Proximity Compatible Principle

- ▶ info that needs to be integrated or compared should be presented close together (allows for patterns to emerge)
 - ▶ Close spatial proximity increases the likelihood of parallel processing

10 – Principle of Multiple Resources

- ▶ facilitate processing of info by presenting via more than one medium

11 – Replace memory with visual information: knowledge in the world

- ▶ Showing something that directly resembles what's happening on the real world.

12 – Principle of predictive aiding

- ▶ Anticipates what information people will need to remember in order to execute tasks they intend.

13 – Principle of Consistency

- ▶ Displays should present info in a consistent manner

Describe at least 2 display principles from this picture.

