Processing Stage

Sensory - registration of incoming signals by sight (80%) to other senses.

Perception - the way we perceive input informs interpretation.

Attention - Filtering mechanisms to reduce overload.

Memory - storage ability - capacity, temporal limitation.

Retention & process further; recall & apply.

Higher order processing - thinking, reasoning, prob solving, decision making.

Visual Perception

Lots of theories (Gestalt, Gibson, Gregory).

Key issues in influence of our expectations based on experiences of object presence.

Usually accurate in giving reality, but some failure (illusions) are common.

Visual Illusions

- Stereokinesis - rotation of object may appear reversed.
- Autokinesis - stationary object appears to be moving.

Effects of Illusions
- Sloping terrain joining runway affects altitude perception.
- Greater effects when runway surface slopes, or if unexpected width/texture (perceptual cues).
- Night - autokinesis.

Auditory perception

Loud auditory stimulus - less easily ignored than visual.

- Perceived more readily when person moving.
- Single warning tone less prone to misinterpretation.
Lifecyle models

1. Identify needs/establish requirements
2. (Re)design
3. Build an interactive version
4. Evaluate

Final product

Aspects of design:
- Affordances - what can be done
- Constraints - what can't be done
- Mappings - logical connections, mock-ups
- Feedback
Temperature

6 factors that affect our response to thermal environment:

1) Air temperature
2) Air velocity
3) Radiant temperature
4) Humidity
5) Clothing worn
6) Intensity and levels of activity.

Temperature and Performance

- Interaction of variables is unclear, subject to individual differences
- Cold reduces ability to perform manual tasks
- Cold reduces cognitive performance
- Moderate heat - benefits some manual tasks, doesn’t affect reaction times
- High levels in physical and mental tasks.

Noise

Many sounds tend to interpret those we dislike as noise. 3 types:

1) Unwanted - do not wish to hear
2) Variable - varying intensity and frequency
3) Interfering - interferes/masks other sounds

Situation specific - both physiological and psychological effects (auditory impairments v. irritation). Findings vary but general impact on performance:

- Levels above 95dB (inside underground train)
- Routine tasks can be performed well
- Continuous work more likely to be disrupted
- As is work that requires high concentration.
Occupational Health Issues

Work related Ailments:
- RSI
- Radiation effects
- Facial rashes
- Visual Problems
- Auditory Problems
- Postural discomfort
- Sick building syndrome
- Pollutants
- Occupational Stress - call centres, 21st Century sweatshops.

Occupational Health

- Difficulty with injuries after interaction with equipment is establishing 'cause & effect'
- Consider other activities that may have influenced or caused condition
- Influence from mecia
- Design of equipment & procedures for use need to take into account injuries that might arise from use of equipment
- Our bodies are built to move - much of our interactions with systems + machinery requires us to be stationary.