Question:
What does it take to make really effective training scenarios?

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What is an effective training scenario?

• The trainee **learns** the training lessons.
• The trainee **retains** the lessons learned.

**The emotional connection**

• Proven to enhance learning and retention.
• Can we stimulate sensory inputs to create this?
Research Areas

• Look at the role our senses play in providing an emotional connection.

• What threshold levels of each sense are necessary to stimulate emotional connectivity?

• Can we determine the most effective combinations of these levels?

• What else can we do to create environments with more emotional links?
**Sensory Stimuli**

**Visual**
- 3D worlds with rich detail
- Subtle and believable lighting techniques

**Auditory**
- Ambient and peripheral noises that provide realism
- Spatialized sounds triggered by participant’s actions

**Olfactory**
- Research the state of current scent delivery systems
- Determine effective olfactory cues for emotional connectivity

**Tactile**
- Low frequency sounds to induce and augment emotional states - “Visceral sound”
• Create emotionally evocative environments of different intensities.

• Set up testing with specific combinations of sensory stimuli.
How do we “ratchet up” the experiences?

Are there things beyond sensory inputs we can take advantage of?

Can we

… provide certain cues that will enable the trainee to construct a story?
… prime people to pay attention to certain things?
… have parts of the environment exist in subjective time and space?
… adapt techniques of other media (such as film) or create our own?
… tap into people’s memories?
… learn from recent advances in cognitive science?
Preliminary Phase

• Determine the basics
  – A specific scenario.
  – What perceptual states (emotions) are we going for.
  – A description of the environment and events that evoke this state.
  – Design guidelines to maximize sensory inputs to achieve these effects.

• Use an iterative design process to work towards maximum emotional triggers.
  – Determine most effective levels of sound, visuals, smells, tactile feedback.
  – Develop and refine techniques to intensify the experience where needed.
What we expect to learn

• The best combinations of sensory stimuli that create emotional connectivity

• Techniques to create more effective emotional links

• How to measure these stimuli and techniques for validity

• To use the results from SEE findings to create future training scenarios
What we are going to see

SEE PROJECT
sensory environments evaluation

Scenario DarkCon
alpha version
November 2001
Evaluation Phase

- Subject testing in finished experiences
  - Questionnaires to determine:
    - Perceived intensity of event (presence)
    - Ability of the participants to recall events
  - Measurements of physiological data
    - Monitored during experience (EEG, ECG, airflow, respiratory effort, GSR)
    - Correlated to questionnaire results