Simulation on a Budget -
Building Low Cost Simulation into Your Training Program

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What is Simulation?

✓ A strategy – not a technology – to mirror, anticipate, or amplify real situations with guided experiences in a fully interactive way.

✓ Interactive and immersive

Agency for Healthcare Research & Quality
How realistic does it have to be?
How realistic does it have to be?

Novice
  e.g. MS 1-2
Lower
Fidelity
(lower cost)

Expert
  e.g. Trauma Team
Higher
Fidelity
(higher cost)
Engineering (physical) Fidelity

The degree to which the training device or environment replicates the physical characteristics of the real task.

Miller RB. Psychological considerations in the design of training equipment. Report no. WADC-TR-54-563, AD 71202. Wright Patterson Air Force Base, OH; Wright Air Development Center; 1953.
Engineering (physical) Fidelity

“High Fidelity” (expensive) Sims
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High- vs. Low-Fidelity Simulations

✓ Level of fidelity required depends on the type of task and stage of training

High- vs. Low-Fidelity Simulations

✔ Level of fidelity required depends on the type of task and stage of training

High skills transfer with simple simulators (including paper exercises or simple plastic models) when training cognitive tasks and procedures

Low-Fidelity Sims
Low-Fidelity Sims
Low-Fidelity Sims

12-lead part task trainer
Low-Fidelity Sims

Hybrid Injection Simulator
Low-Fidelity Sims

Breast Vest Hybrid Simulator
Low-Fidelity Sims / Games

Human Knot
Focus: Teamwork

Everyone stands in a circle and puts their right hand into the middle. They clasp hands with someone across the circle. Then, everyone puts their left hand into the middle of the circle and clasps the hand of a *different* person. The group is now in a “knot”. The object is for the group to untangle itself without releasing anyone’s hand.
Low-Fidelity Sims / Games

60 Second Speeches
Focus: Speaking Skills

Have different topics pre-written on pieces of. One by one, participants will pick a topic and must give a 60 second speech however they would like. The only rule is that they must not stop talking or hesitate for the entire minute.
Low-Fidelity Sims / Games

“Malpractice”
Low-Fidelity Sims / Games
www.mydoctorgames.com
Low-Tech / Low-High Fidelity
Low-Tech / Low-High Fidelity
Low-Tech / Low-High Fidelity
Psychological *(functional)* Fidelity

- Focus on the learners, and psychologically significant aspects of the situation
- Engaging the learner in the simulation
“Fiction Contracting”

✓ Brief the learners - “We know this is fake but act as if it’s real”
✓ Stressful, challenging simulation (distraction)
✓ Reality cues

...The “5% rule”

Ultra concrete learners (5%)

They just don’t buy it
Ultra suggestible learners (5%)

...The “5% rule”

They’ll buy anything
Evaluative Space Model: Inviting Engagement in Learning

- **Fear**
  - Tense
  - Nervous
  - Stressed
  - Upset

- **Unpleasant**
  - Sad
  - Depressed
  - Lethargic
  - Fatigued

- **Anger**
  - Tense
  - Nervous
  - Stressed
  - Upset

- **Disgust**
  - Tense
  - Nervous
  - Stressed
  - Upset

- **Sadness**
  - Tense
  - Nervous
  - Stressed
  - Upset

- **Pleasant**
  - Alert
  - Excited
  - Elated
  - Happy

- **Happiness**
  - Alert
  - Excited
  - Elated
  - Happy

- **Contented**
  - Serene
  - Relaxed
  - Calm

(From Cacioppo & Berntson, 1994, Psychological Bulletin, 115, p. 842)
Best Evidence Medical Education (BEME) collaboration

Conditions that facilitate *simulation learning*

- Feedback / debriefing
- Repetitive practice
- Simulation & didactic learning integrated
- Learners practice tasks with increasing difficulty

Thank you!