



IN-SITU SIMULATION IN EM TRAINING

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NOTHING TO DISCLOSE





OBJECTIVES

- Description & Definitions
- Advantages
- Challenges
- How to start!
- Stories
- Home messages



DEFINITION

1ST EDITION, June 2016

Health
Digi



WITH THE SUPPORT AND
Patient Educators (ASPE) • Australian
(Abrassim) • Canadian Network
Nursing Association for Clinical
Instructional Systems in Health
• Latin American Association
Simulation in Healthcare (NZAS)
Society of Medical Simulation (S
for Simulation Education in Me
Medicine (SESAM) • Spanish Society of Clinical Simulation and Patient Safety (SSCSF)

In Situ/In Situ Simulation



inal) place or position,”

at participle stem of
” Meaning “a model or
g” is from 1954.

ng/environment in an
d realism; this training is
ronments, due to space
ilance, a small aircraft,
e & Murray, 2008).
shoot, or develop new



DEFINITIONS

- **In situ simulation:** takes place in the actual working environment and involving those who work there
- **Center-based simulation:** takes place in a **simulation** center separate from the work environment
- **Guerilla.....**
- **Mobile**



IN-SITU SIMULATION

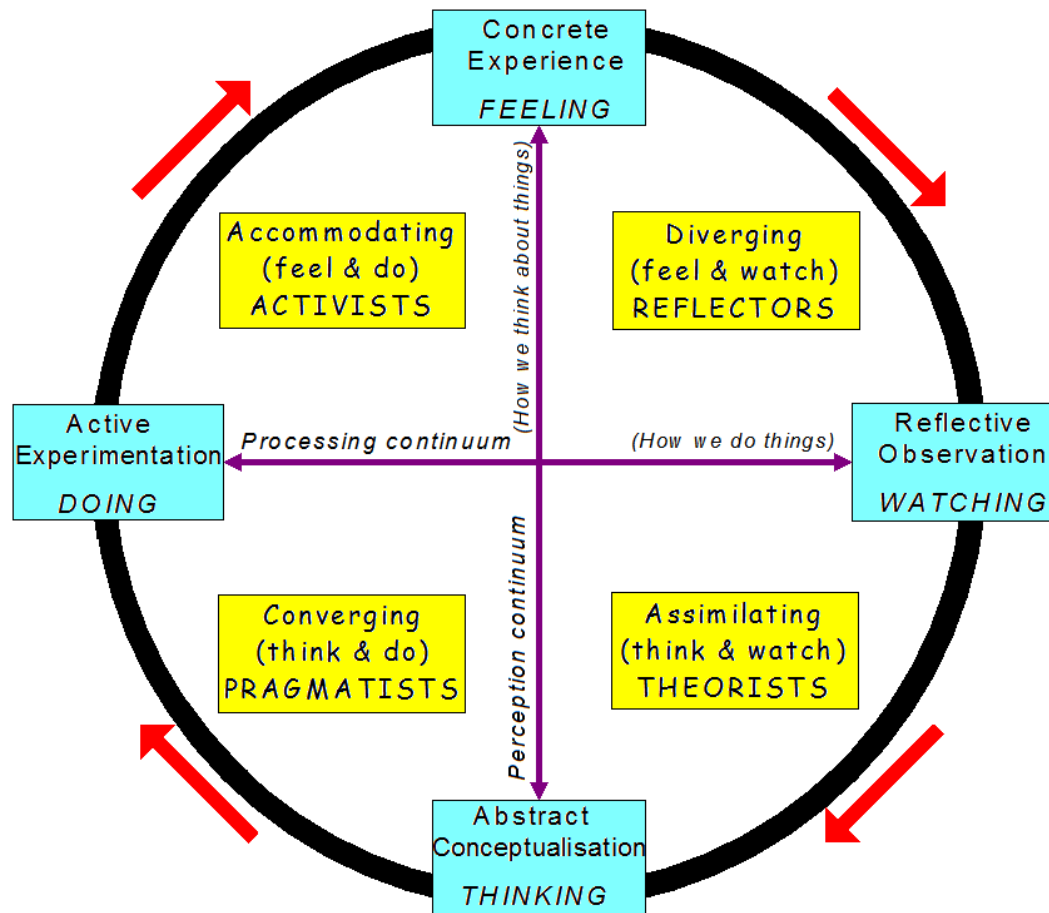
- Simulation modality
 - Manikin, SP, PTT, or hybrid
- Participation?
- Scheduled?
- Announced?
- Fidelity / Realism
 - High or low





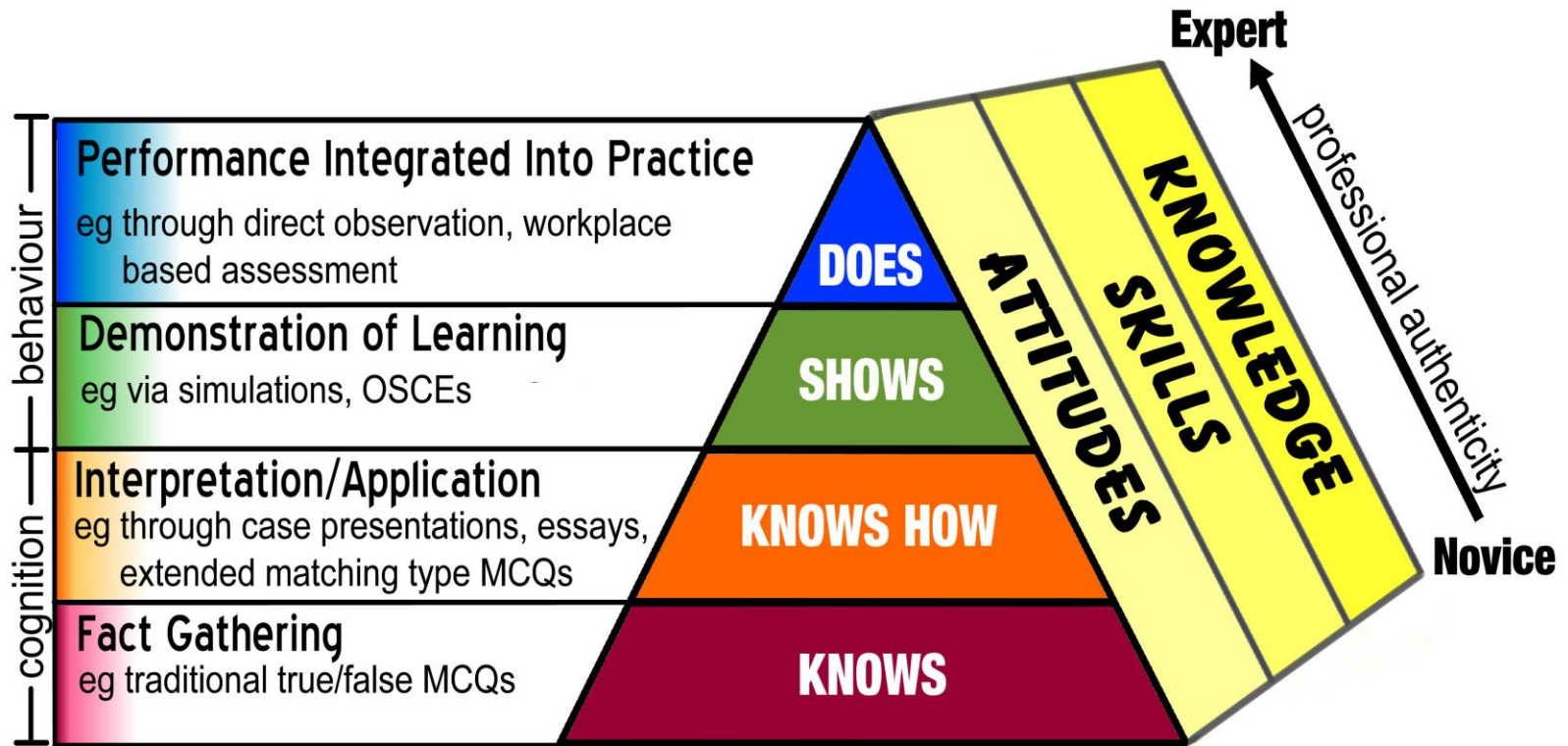
RATIONALE

- Kolb's theory of experiential learning



MILLER'S PRISM OF CLINICAL COMPETENCE (aka Miller's Pyramid)

**it is only in the "does" triangle that the
doctor truly performs**



*Based on work by Miller GE, The Assessment of Clinical Skills/Competence/Performance; Acad. Med. 1990; 65(9); 63-67
Adapted by Drs. R. Mehay & R. Burns, UK (Jan 2009)*

SIMULATION; DOES IT WORK?

- A review of 109 studies; The best available evidence shows a benefit for simulations when four conditions are met:
 1. Educational feedback is provided
 2. Learners are given the opportunity for repetitive practice
 3. Exercises based on the simulation are integrated with curriculum
 4. Tasks range in difficulty
- *Editorial – Med Teacher* 2005;27: 10-28
- Systematic Review; 29 studies of in situ simulation
- Suggested positive impacts on learning & organizational performance
- Simulation design, delivery & evaluation methods varied greatly
- overall the studies were generally low quality.

APPLICATIONS

- Team performance in the workplace
 - Individual performance within a team
 - Familiarity to equipment & environment
- Identifying and mitigating threats to patient safety
 - Latent threats
- Improve protocols, systems and infrastructure



ADVANTAGES

- Learn about the environment
- More comfortable for learners
- High realism (environment & teams)
- Less prebriefing
- Easier & accessible
- Cost
- Free for learners



CHALLENGES

- Interruption
- Psychological safety
- Logistics, Time & Planning
- Cost
- Faculty (Sim Experience)
- Technical issues & AV system
- Potential safety issues



CHALLENGES

Potential safety issues

- Administration of simulated medications to real patients
- Simulation equipment/supplies used in clinical situations
- Contamination of equipment
- Deviation of resources/attention away from patients
- Incomplete Debriefing
- Psychological impact on families



HOW TO START!

- Encourage participation
 - Buy-in, Objectives, Learning opportunity, Incentives
- Improve feasibility
- Improve educational effectiveness
- Address latent safety threats
- Address safety issues
- Boost patient and staff perceptions



TAKE HOME MESSAGES

1. In-Situ Simulation is best for identifying latent errors & improving team performance
2. Plan, Plan, Plan
3. Build an enthusiastic Team
4. Obstacles? Most can be solved....
5. Safety issues are real!



REFERENCES

- Patterson, Mary D., George T. Blike, and Vinay M. Nadkarni. "In situ simulation: challenges and results." (2008).
- Rosen MA, Hunt EA, Pronovost PJ, Federowicz MA, Weaver SJ. In situ simulation in continuing education for the health care professions: a systematic review. J Contin Educ Health Prof. 2012 Fall;32(4):243-54. doi: 10.1002/chp.21152. Review. PubMed PMID: [23280527](#).
- <http://lifeinthefastlane.com/ccs/situ-simulation/>
- Kobayashi L, Parchuri R, Gardiner FG. Use of in situ simulation and human factors engineering to assess and improve emergency department clinical systems for timely telemetry-based detection of life-threatening arrhythmias. BMJ quality & safety. 22(1):72-83. 2013.



THANK YOU!

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