Simulation in Medical Education

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The development and maintenance of expertise in any domain requires extensive, sustained practice in a manner which embeds self-awareness, performance monitoring and critical reflection
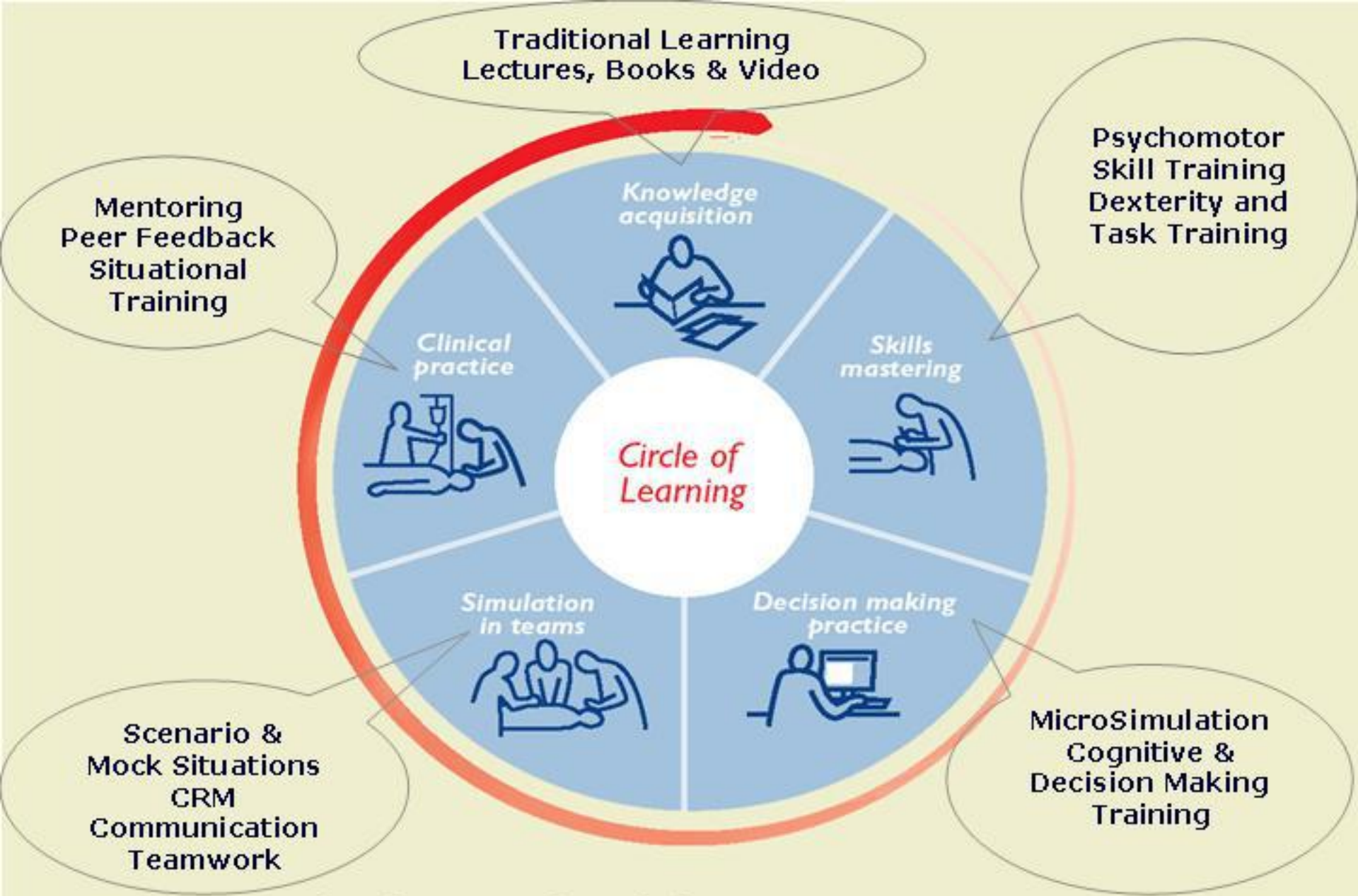
The Circle of Learning

Traditional Learning
Lectures, Books & Video

Psychomotor
Skill Training
Dexterity and
Task Training

Mentoring
Peer Feedback
Situational
Training

Knowledge
acquisition

Clinical
practice

Skills
mastering

Circle of
Learning

Simulation
in teams

Decision making
practice

Scenario &
Mock Situations
CRM
Communication
Teamwork

MicroSimulation
Cognitive &
Decision Making
Training

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How relevant is it for you?

- **Should become relevant by**

  - Meeting your needs as learners for ongoing education

  - Being related to your current clinical practice

  - Providing the ability to practice infrequent yet catastrophic events

  - Reinforcing basic patient assessment and decision making

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How relevant is it for you?

- **Should become relevant by**

    - Providing the ability to learn in your own environment

    - Developing confidence and competence in a patient safe environment

    - Helping develop good self reflective skills to improve learning

    - Facilitating human factor training
            Effective Trauma Team Response!

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In Summary

- **Defined simulation and the different types**

- **Reviewed advantages and disadvantages**

- **Discussed how simulation can be integrated into an education process**

- **Identified why it should be relevant to you in your practice**

In Conclusion

"Simulation is an educational technique that allows interactive, and at times immersive activity by recreating all or part of a clinical experience without exposing patients to the associated risks"

Maran & Glavin, Medical Education
Vol 37, Issue s1,page 22 – november 2003

Thank you

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Introduction

- Define Simulation

- Advantages and Disadvantages

- Integration into an education process

- How relevant is it for you?

What is Simulation?

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- ## Simulation is
  - Close resemblance or imitation
  - Assumption of a false appearance
  - Reproduction or representation

- ## Medical Simulation
  - Training or educating in a synthetic or "almost real" environment

- ## Fidelity in Simulation – Internal & External
  - Exact correspondence with fact or with a given quality, condition, or event; accuracy, degree of similarity.

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Types of Simulation

- **Manikin (Mannequin)**
  - Human Patient Simulators - MacroSimulation
  - High or low fidelity

- **Anatomical Models**
  - Part task training-Psychomotor skill development
  - High or low fidelity

- **Software based**
  - Decision making skills – Metacognition – MicroSimulation
  - High fidelity much more effective – immersive for the learner
  - Must provide debriefing/feedback to the learner

Types of Simulation

- **Haptics**
  - Mechanical Models and Virtual Reality combined
  - High fidelity

- **Standardised Patient**
  - "Real" patients for assessment
  - Actors moulaged for a scenario

- **Animal and Cadaveric**
  - Individual skill performance
  - Accurate anatomically

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Advantages of Simulation

- **Patient Safety**
  - Safe environment to practice in
  - Fewer "real" cases available for students and junior staff to experience

- **Repitition**
  - Able to repeat experience as necessary - confidence
  - Able to perform infrequently used skills

- **Human Factor Training**
  - Team performance and training
  - Self reflection on practice

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Advantages of Simulation

- **Learner development**

  - Situational analysis of clinical environment

  - Critical thinking skills

  - Decision making skills

  - Application of knowledge in a context

  - Videotaping allows repeated review and comparison

Disadvantages of Simulation

- **May be Intimidating**
  - Having to "perform"
  - Setting yourself up for critical review – "I'm not going to do that, they'll all be watching me, what if I stuff up!"
  - Confidentiality!

- **Unfamiliar with equipment**
  - Manikin functionality – What you can and can't do
  - Software functionality

- **New learning environment**
  - Requires self reflection without being defensive
  - Being "Debriefed" by someone else – good skills

Simulation Should

- ## Be based around
  - The needs of the learner and the organisation
  - The opportunity to apply and integrate theoretical knowledge
  - Training in a safe environment

- ## Not be
  - Designed to introduce new material for the first time
  - Used to intimidate or humiliate