FINE
Workgroup

NaSim

Can simulation replace clinical teaching?
How to implement simulation?

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Conflict of interest

- No conflict of interest to declare but …

I believe in the potential of simulation

Definition (Servotte et al., 2019)

- Simulation is a pedagogical strategy that recreates or replicates a clinical situation and/ or a clinical context.
- One or more of these aspects resemble the reality of the workplace and allow participants to practice, learn, or assess their actions in a safe environment. (Gaba, 20044; Lopreiato et al., 2016)
- Simulation-based learning experiences include a multitude of structured activities that aim to develop and increase knowledge, skills, and attitudes (KSA)

→ Close to reality

Modalities

- Simulation encompasses a broad range of modalities

Modalities

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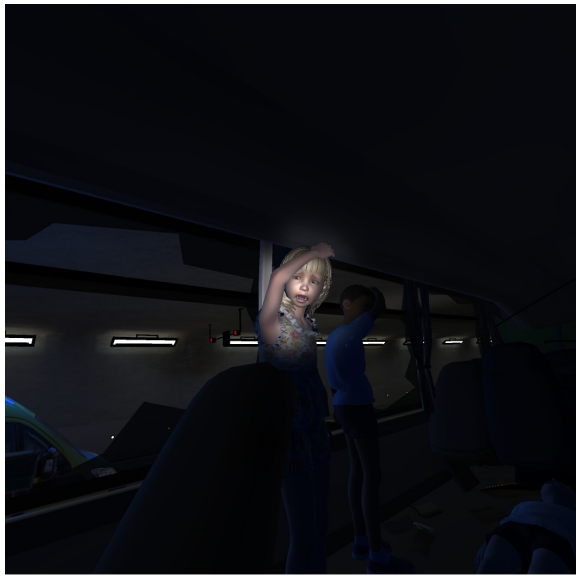
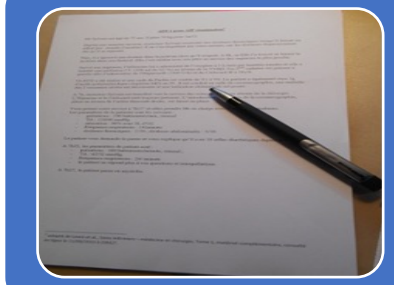


Simulation modalities (Alinier 2007 ; Jetté & Charrette 2010)



Level 0

- Clinical case
- Problem-based learning

Level 1

- Procedural simulation
- Specific psychomotor skills

Level 2

- Computer-based simulation

Simulation modalities (Alinier 2007 ; Jetté & Charrette 2010)

Level 3

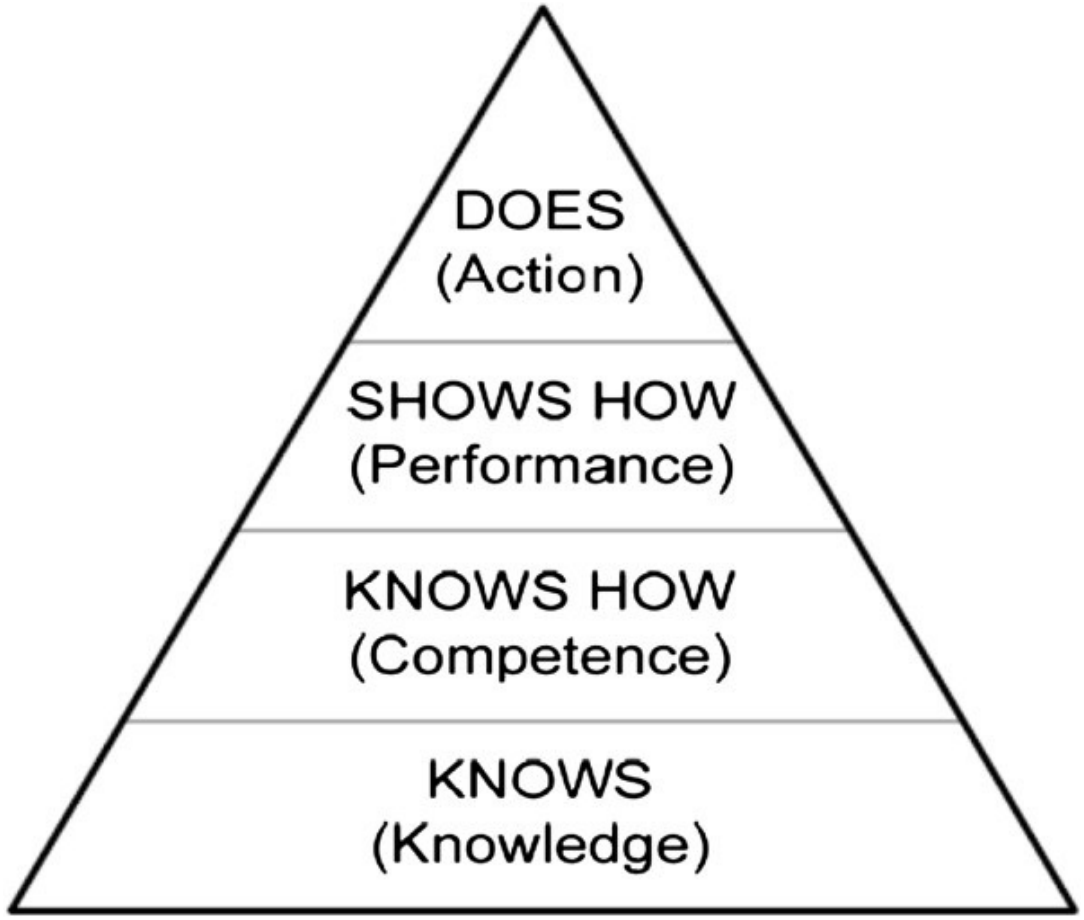
- Standardized Patients
- OSCE

Level 4

- Manikins : intermediate patient simulators

Niveau 5

- Manikins : high fidelity



Level 3-4-5 → KSA
+ Clinical setting

Level 3-4-5 → K / S / A

Level 1-2 → K / S

Level 0 → K

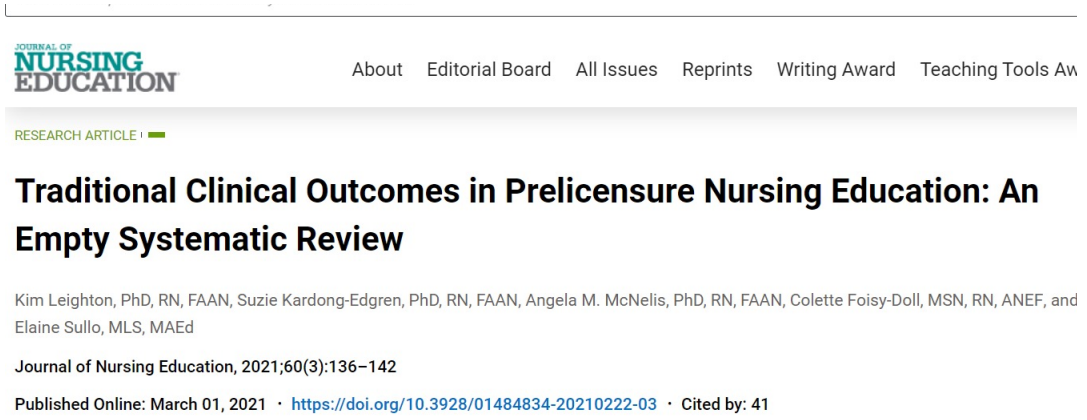
Miller's pyramid describing levels of competency. Source: *Miller GE. The assessment of clinical skills/ competence/performance. Acad Med 1990;65(9 Suppl.):S63*

Clinical setting (Institute of Medicine, 2010; Conseil International des Infirmières, 2010; Greiner & Knebel, 2003)

- Traditional clinical teaching
- « Gold standard » → 2300h (Europe) >< 900 h (Canada), 1000h (Australia, new program)
- Technical rationality : instrumumental resolution → strict application → knowledge & skills
- Hierarchical professional knowledge and skills

Effectiveness of traditional clinical apprenticeship models

- Systematic review



JOURNAL OF NURSING EDUCATION

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RESEARCH ARTICLE

Traditional Clinical Outcomes in Prelicensure Nursing Education: An Empty Systematic Review

Kim Leighton, PhD, RN, FAAN, Suzie Kardong-Edgren, PhD, RN, FAAN, Angela M. McNelis, PhD, RN, FAAN, Colette Foisy-Doll, MSN, RN, ANEF, and Elaine Sullo, MLS, MAEd

Journal of Nursing Education, 2021;60(3):136–142

Published Online: March 01, 2021 · https://doi.org/10.3928/01484834-20210222-03 · Cited by: 41

- Literature for over 50 years
- No studies reported learning outcomes attributed to clinical education models, resulting in an empty review
- Self-reports of perceptions and confidence, lacking quantitative outcomes

Effectiveness of traditional clinical apprenticeship models (Polifroni 1995; Norman 2005)

What are students doing ????

- **44% patient care**
- 9% break
- 9% self-instruction
- 8% planning / organization
- 5% charting
- **25% nothing**

Effectiveness of traditional clinical apprenticeship models (Polifroni 1995; Norman 2005)

What are students doing ????

- **44% patient care → 1.012h**
- 9% break
- 9% self-instruction
- 8% planning / organization
- 5% charting
- **25% nothing → 575h**

Effectiveness of traditional clinical apprenticeship models (Polifroni 1995; Norman 2005)

Interactions ???

- **15% teacher/trainer → 345h**
- 9% nurse → 207h
- 9% other students
- **61% himself → 1.403h**
- 8% other

Effectiveness of traditional clinical apprenticeship models

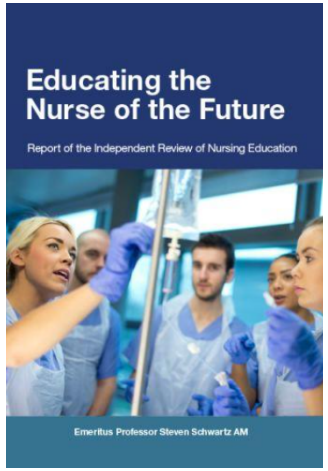
- Adverse events associated with care???

- Students and newly graduated nurses make more mistakes (e.g. Molloy, 2017; Monrouxe et al., 2018)

Call to review nursing education

- Competencies: an ambiguous notion
- Form of secondary knowledge
- Phenomena involved: complexity, instability, uncertainty, etc.
- Technical rationality

Call to review nursing education



Clinical placement : 400h → 1.000h
→ Target : 400h simulation – 600h clinical placement
→ Accreditation : simulation centers & clinical placement

Institute of Medicine (2010)
***Key Message #2*: Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academicprogression**

→ Simulation : key area

Effectiveness of simulation

- Satisfaction:
  - ✓ High level
  - ✓ Emotional

  (e.g. Cook et al., 2013; Howard, 2007; Jeffries & Rizzolo, 2006; Simoneau et al., 2012)

→Improvement in learning

→Data saturation phenomenon

Effectiveness of simulation

- Self-efficacy
  - ✓ Rare situations (Kaplan et al., 2011; Kneebone, 2003; Pascual et al., 2011)
  - ✓ Technical and non-technical skills (Bruce et al., 2009; Korbridge et al., 2008; MacLean et al., 2017)
  - ✓ Level of preparedness and ability to practice in the clinical field (Haut et al., 2014)

≠ Knowledge and competence (Mould et al., 2011; Tofil et al., 2011)

Effectiveness of simulation

- Knowledge (p.ex. Bruce et al., 2009; Haut et al., 2014; Simoneau et al., 2017)
  - ✓ Débriefing → development & consolidation (Simoneau et al., 2014; Servotte et al., 2018; Tanner, 2006)
  - ✓ Short term: improvement (Bruce et al., 2009; Scherer et al., 2007)
  - ✓ No impact (Kennedy et al., 2014; Cook et al., 2013)

Effectiveness of simulation

Review

Effectiveness of patient simulation in nursing education: Meta-analysis

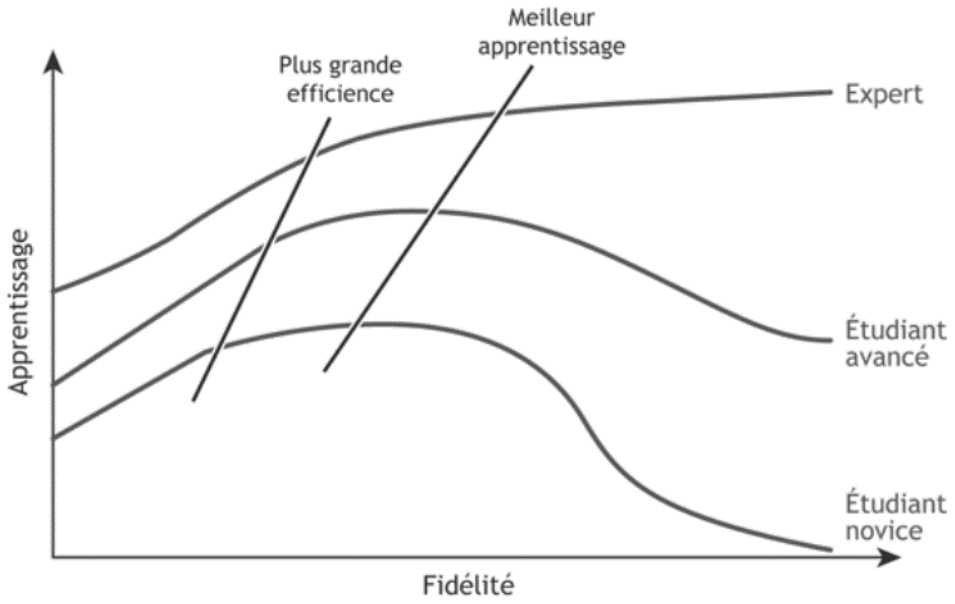
Sujin Shin [a], Jin-Hwa Park [b], Jung-Hee Kim [c]

Medium-large effect size:

- Effects through performance
- Evaluation: psychomotor skills
- Subject of learning: clinical
- Learners: nurses & senior students
- High fidelity

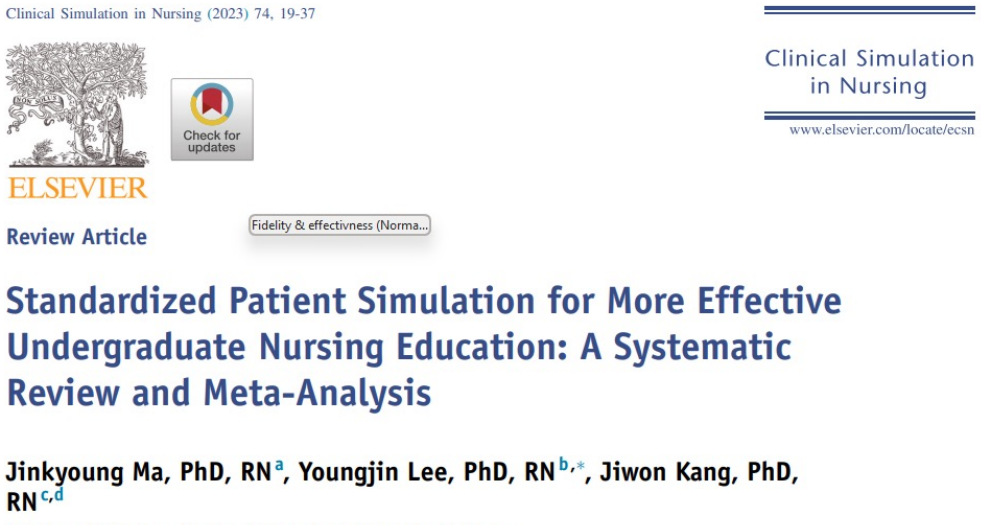
Fidelity & effectivness (Norman, 2012),

- Learners who participated in either high-fidelity or low-fidelity simulation systems → consistent performance improvements
- No significant advantage of high-fidelity simulation over low-fidelity simulation



(Alessi, 1988 repris par Chiniara, 2007).

Effectiveness of simulation


Clinical Simulation in Nursing (2023) 74, 19-37

Improvement:

- Communication skills
- Communication self-efficacy
- Self-efficacy
- Learning self-efficacy
- Problem-solving ability
- Satisfaction

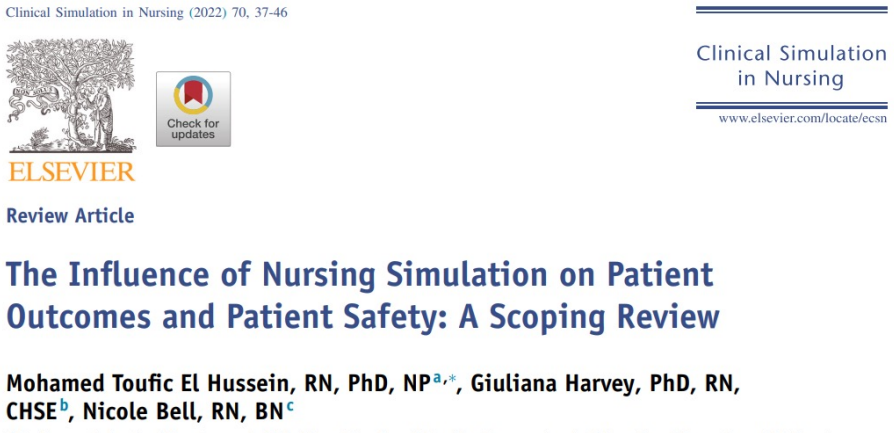
Conditions:

- Professionally trained SP
- Multiple sessions: continuously and repeatedly
- Strategies for progressively exposing nursing students to SP

→ Psychological safety???

→ USA & Korea

Effectiveness of simulation


Clinical Simulation in Nursing (2022) 70, 37-46

Clinical Simulation in Nursing

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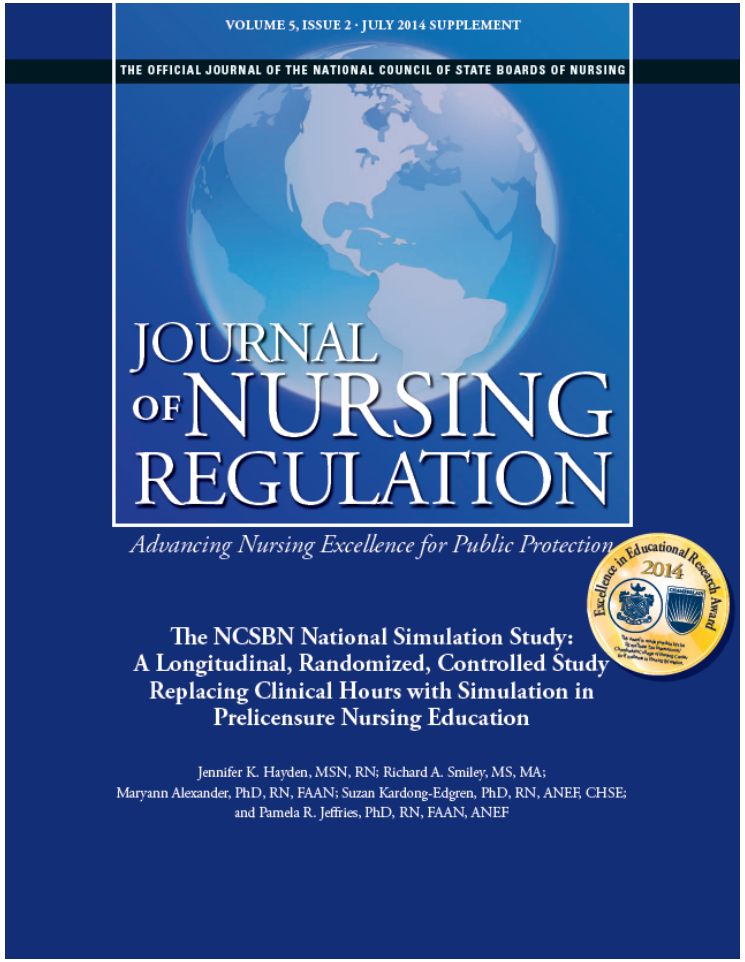
Review Article

The Influence of Nursing Simulation on Patient Outcomes and Patient Safety: A Scoping Review

Mohamed Toufic El Hussein, RN, PhD, NP[a,*], Giuliana Harvey, PhD, RN, CHSE[b], Nicole Bell, RN, BN[c]

- Lack of rigorous literature
- Simulation positively impacts nursing performance, patient safety, and patient outcomes
- High level of knowledge transfer

Substitution clinical placement



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Journal of Nursing Regulation

Volume 5, Issue 2, Supplement, July 2014, Pages S3-S40

The NCSBN National Simulation Study: A Longitudinal, Randomized, Controlled Study Replacing Clinical Hours with Simulation in Prelicensure Nursing Education

Jennifer K. Hayden MSN, RN, Richard A. Smiley MS, MA, Maryann Alexander PhD, RN, FAAN, Suzan Kardong-Edgren PhD, RN, ANEF, CHSE, Pamela R. Jeffries PhD, RN, FAAN, ANEF

NCSBN study

This study provides substantial evidence that up to 50% simulation can be effectively substituted for traditional clinical experience in all prelicensure core nursing courses under conditions comparable to those described in the study. These conditions include faculty members who are formally trained in simulation pedagogy, an adequate number of faculty members to support the student learners, subject matter

Substitution of clinical placement

Substitution of Clinical Experience With Simulation in Prelicensure Nursing Programs: A National Survey in the United States

Tonya L. Breymier, PhD, RN, CNE[a,*],
Tonya Rutherford-Hemming, EdD, RN, ANP-BC, CHSE[b],
Trisha Leann Horsley, PhD, RN, CHSE, CNE[c], Teresa Atz, PhD, RN[d],
Lisa G. Smith, PhD, RN, CNE[e], Donna Badowski, DNP, MSN, RN, CNE[f],
Kelley Connor, RN, MS, CNE, CHSE[g]

Suggests a **2:1** clinical-to-simulation ratio: 2 clinical hours count as 1h of simulation training → **intensity and efficiency of simulation training**

Substitution of clinical placement

Olaussen *et al. BMC Nursing* (2022) 21:47
https://doi.org/10.1186/s12912-022-00824-2

BMC Nursing

RESEARCH Open Access

Integrating simulation training during clinical practice in nursing homes: an experimental study of nursing students' knowledge acquisition, self-efficacy and learning needs

Camilla Olaussen[1,2*], Simen A. Steindal[1], Lars-Petter Jelsness-Jørgensen[1,3,4], Ingunn Aase[5], Hege Vistven Stenseth[1] and Christine Raaen Tvedt[1]

Norway: Nursing home → first-year nursing students

→ Substitution : 10,7%

→ Higher knowledge acquisition

→ Self-efficacy : no difference

→ Clinical placement group reported little time for reflection

The simulation power

- Demontrated the same effects : learning improvements

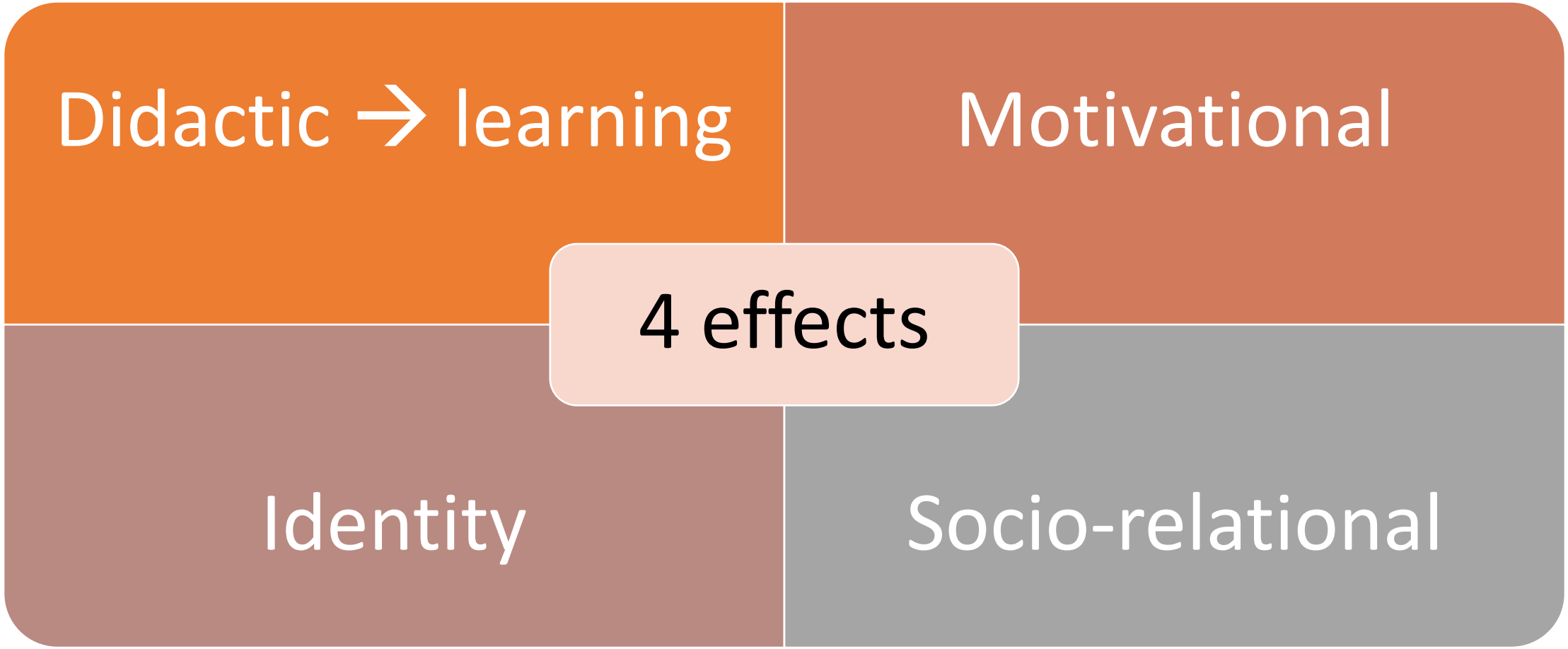
- But:
  - ✓ Lack of evidence in Europe

The simulation power

- Demontrated the same effects : learning improvements

- But:
  - ✓ Lack of evidence in Europe
  - ✓ Psychological safety: very confronting
  - ✓ Training of trainers required
  - ✓ ROI to investigate

Effect of simulation (Faulx & Danse, 2020)



Need to

- (re) Design clinical placement
- Design correctely simulation activities
- Rethink « teams »

Why?

- Number of adverse events associated with care
- Technical skills >< non-technical skills
- Procedural simulation: part of psychosocial skill

Reality is quite different

How can we implement simulation ?

Criterion 1: Simulation experiences should be designed in consultation with content experts as well as simulationists who are knowledgeable and competent in best practices in simulation education, pedagogy, and practice.

Criterion 2: Perform a needs assessment to provide the foundational evidence of the need for a well-designed simulation-based experience.

Needs assessment

Needs assessment could/should include analysis of:

- Underlying causes of concern (e.g., root cause or gap analysis)
- Organizational analysis (e.g., Strengths, Weaknesses, Opportunities and Threats analysis)
- Surveys of stakeholders
- Outcome data (e.g. pilot testing, exams, patient safety)
- Standards

Simulation design

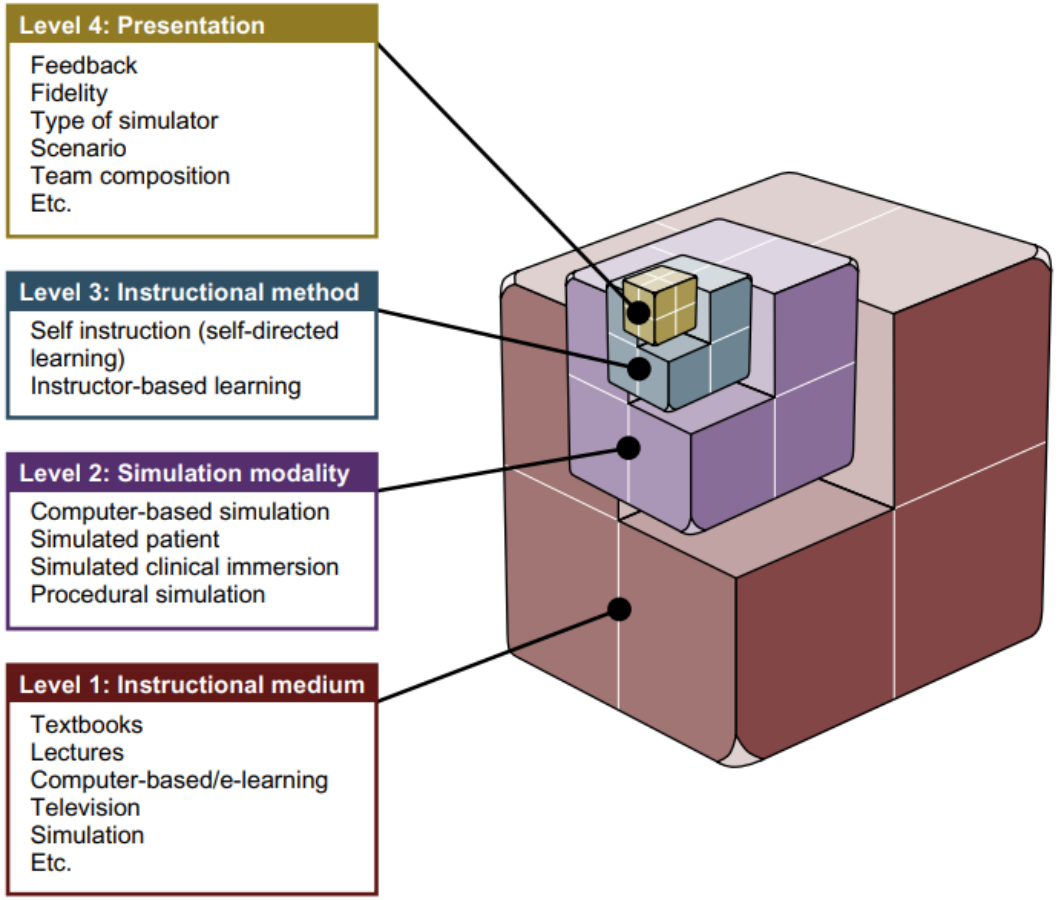


FIGURE 18.2 Instructional design model for simulation-based education with four levels that define the instructional medium, the simulation modality, the instructional method, and presentation. Source: *From: Chiniara G, Cole G, Brisbin K, Huffman D, Cragg B, Lamacchia M, et al. Simulation in healthcare: a taxonomy and a conceptual framework for instructional design and media selection.* Med Teach *2013;**35**(8):e1382.*

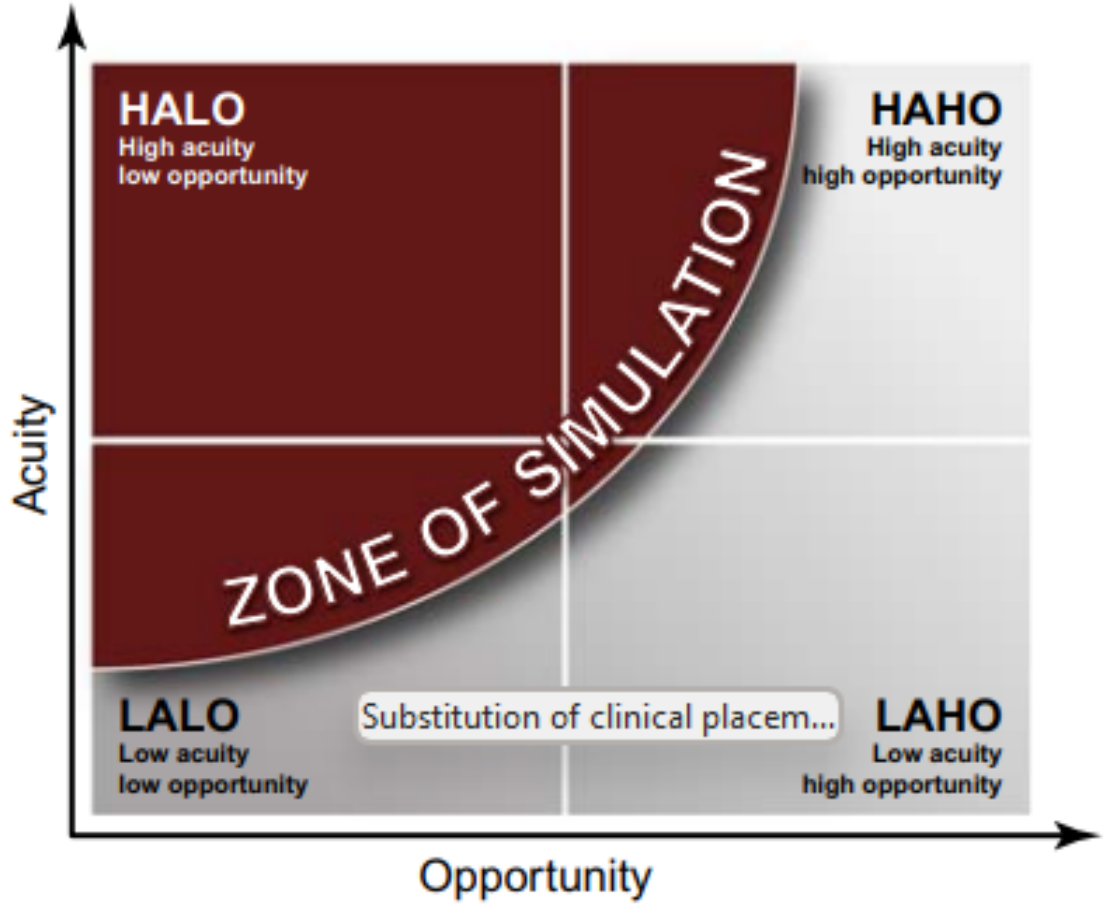


FIGURE 18.3 The zone of simulation matrix. Source: *From: Chiniara G, Cole G, Brisbin K, Huffman D, Cragg B, Lamacchia M, et al. Simulation in healthcare: a taxonomy and a conceptual framework for instructional design and media selection.* Med Teach *2013;35(8):e1382.*

Criterion 3: Construct measurable objectives that build upon the learner's foundational knowledge.

Criterion 4: Build the simulation-based experience to align the modality with the objectives.

Design simulation

Progressiveness


L'APPRENTI SORCIER

Merci de votre attention