Real enough to care: Co-presence in hologram vs. flat-screen simulation for BSN students

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Conflicts of Interest and Disclosures

- Current PI & Co-I's have a current in-kind grant with the vendor
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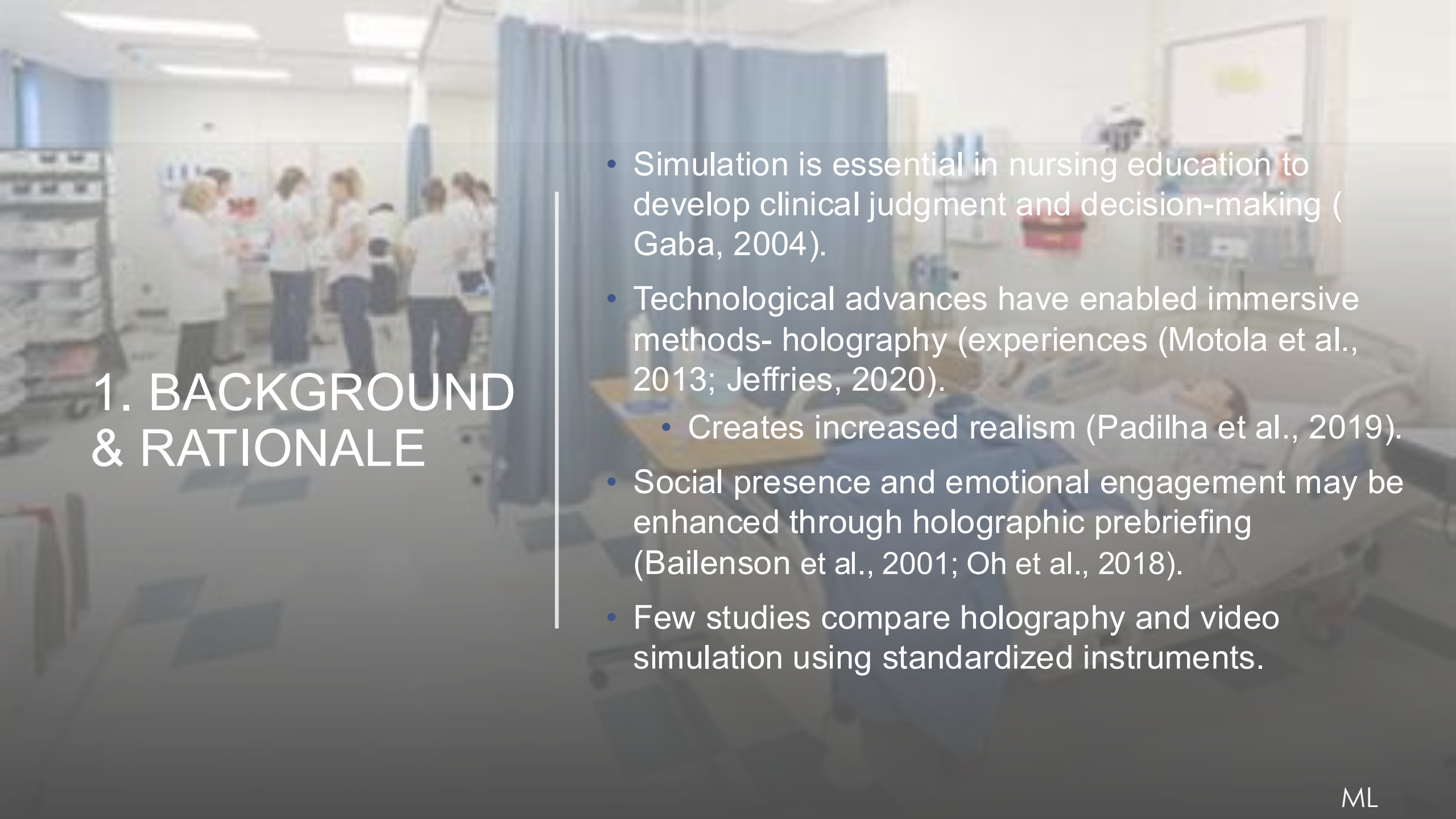
- Guido-Sanz- INACSL Nomination Committee; Simulation patents pending

Learning Objectives (SMART)

By the end of the presentation attendees will be able to ...

- Describe the importance of co-presence to engaging learning the facilitates transition to practice.
- List at least two ways in which the holographic set up enhances the co-presence experience.
- Describe at least two ways in which they could use this technology within their own nursing education program.



1. BACKGROUND & RATIONALE

- Simulation is essential in nursing education to develop clinical judgment and decision-making (Gaba, 2004).
- Technological advances have enabled immersive methods- holography (experiences (Motola et al., 2013; Jeffries, 2020).
  - Creates increased realism (Padilha et al., 2019).
- Social presence and emotional engagement may be enhanced through holographic prebriefing (Bailenson et al., 2001; Oh et al., 2018).
- Few studies compare holography and video simulation using standardized instruments.

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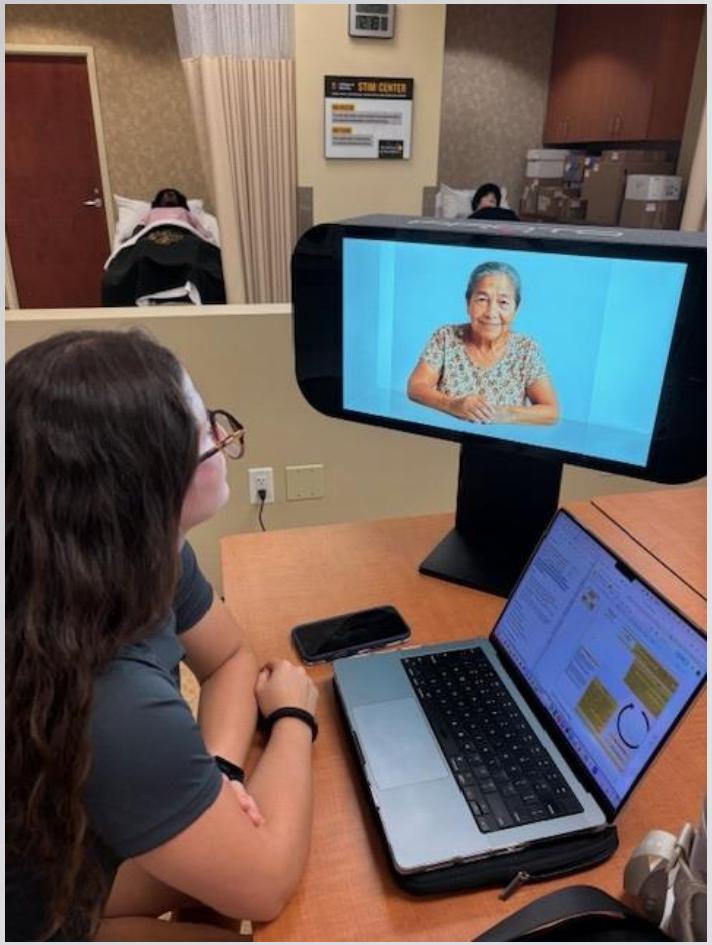

- Co-presence is the feeling of being present with a person in a shared space.
- When students perceive a strong sense of co-presence during a simulation, they are more likely to engage and respond similarly to what would occur in a real practice environment.

(MACLEAN ET AL., 2019).

2. OBJECTIVE & HYPOTHESIS

OBJECTIVE

Compare students' perceptions of effectiveness and social presence in holographic vs. flat screen prebriefing.

HYPOTHESIS

Holographic prebriefing would enhance confidence, learning, and presence more than traditional video.

3. THEORETICAL FRAMEWORK

- Experiential Learning Theory (Kolb, 1984), learning is most effective when learners first gain knowledge, then practice applying it during experience, and finally when they reflect on their learning.
- Simulations that promote co-presence enhance the concrete experience by making the interaction seem more authentic.

4. METHODS

This study employed a quantitative, **quasi-experimental design** with two parallel groups: one using holographic patient simulation (H) and another using video-based simulation (F) during prebrief (INACSL Standards Committee, Persico et al., 2025).

DESIGN AND SAMPLE

The research was conducted at a large university in the South and approved by the Institutional Review Board (IRB).

Sample: 127 nursing students randomly assigned to two groups: Hologram (n = 64) and Flat Screen Video (n = 63).

Participants engaged in a clinical simulation scenario involving a pediatric patient, followed by a structured debriefing.

Instruments: Demographic Survey, the Simulation Effectiveness Tool – Modified (SET-M) (Leighton et al., 2015), and the Social Presence Scale (Bailenson et al., 2001)).

Analysis: Descriptive and inferential statistical analyses were conducted (t-tests and chi-square tests).

4a. CLINICAL SCENARIO

- Pediatric patient: 14-year-old "Nicole”.
- Goals: health history-taking, communication, psychosocial assessment.
- Duration: 10-min. interaction, 5-min. small group, 20-min. debriefing.
- Tools: Proto hologram table top vs. pre-recorded video.

5. RESULTS-DEMOGRAPHICS

No significant differences between groups

Demographic Variable	Hologram (n=64)	Flat Screen (n=63)
Age (Mean ± SD)	20.70 ± 3.01	21.02 ± 2.71
Gender (Female/Male)	56 / 8	54 / 9
Ethnicity (White/Asian/Black/Others)	42 / 10 / 10 / 2	40 / 12 / 9 / 2
Hispanic or Latino	21	17
Prior Hologram Experience (Yes)	3	0

5. RESULTS - SIMULATION EFFECTIVENESS TOOL – MODIFIED (SET-M)

Item	Mean Hologram (SD)	Mean Flat Screen (SD)	t-statistic	p-value
Prebriefing 1	2.74 ± 0.44	2.60 ± 0.55	1.53	0.128
Prebriefing 2	2.78 ± 0.46	2.67 ± 0.52	1.29	0.199
Scenario 1	2.81 ± 0.41	2.67 ± 0.50	1.77	0.079
Scenario 2	2.75 ± 0.48	2.60 ± 0.57	1.63	0.106
Scenario 3	2.72 ± 0.51	2.63 ± 0.56	0.95	0.345
Scenario 4	2.77 ± 0.45	2.62 ± 0.54	1.66	0.100
Scenario 5	2.66 ± 0.52	2.57 ± 0.58	0.91	0.365
Scenario 6	2.73 ± 0.47	2.56 ± 0.59	1.76	0.081
Scenario 7	2.72 ± 0.48	2.63 ± 0.53	1.01	0.316
Scenario 8	2.75 ± 0.44	2.67 ± 0.54	0.94	0.351
Scenario 9	2.80 ± 0.42	2.65 ± 0.56	1.74	0.084
Scenario 10	2.72 ± 0.49	2.60 ± 0.58	1.23	0.220
Scenario 11	2.75 ± 0.47	2.62 ± 0.55	1.40	0.163
Scenario 12	2.70 ± 0.49	2.60 ± 0.57	1.10	0.273
Debriefing 1	2.83 ± 0.38	2.67 ± 0.51	2.03	0.045*
Debriefing 2	2.78 ± 0.42	2.41 ± 0.64	3.85	<0.001*
Debriefing 3	2.69 ± 0.50	2.52 ± 0.62	1.64	0.104
Debriefing 4	2.75 ± 0.44	2.63 ± 0.60	1.23	0.222
Debriefing 5	2.73 ± 0.45	2.76 ± 0.50	-0.33	0.743

(*p < 0.05)

- These findings indicate that both simulation methods were generally perceived as effective.
- Statistically significant differences emerged in specific aspects of the debriefing dimension.
- Suggests similar perceptions of simulation effectiveness across most aspects of the simulation experience.

5. RESULTS – SOCIAL PRESENCE SCALE

Item	Mean Hologram (SD)	Mean Flat Screen (SD)	t-statistic	p-value
Presence 1	4.80 ± 1.50	3.98 ± 1.81	2.75	0.007*
Presence 2	4.52 ± 1.38	3.97 ± 1.72	1.97	0.051
Presence 3	4.44 ± 1.53	3.70 ± 1.53	2.72	0.007*
Presence 4	5.11 ± 1.46	4.60 ± 1.56	1.89	0.062
Presence 5	4.77 ± 1.42	3.70 ± 1.53	4.07	<0.001*

(*p < 0.05)

- Significantly higher perceptions of social presence in the Hologram Group.
- Notabley items related to realism and engagement (Presence 1, Presence 3, and Presence 5).
- Suggests greater perceived interaction and immersion in the holographic simulation environment.

6. DISCUSSION

- Holography enhanced emotional expression and presence.
- Flat screen facilitated reflection and confidence during debrief.
- The hologram group significantly perceived that the experience helped them recognize areas of their performance that are competent and where they need to continue to practice.
- Likewise, the hologram scenario rated higher for co-presence as measured through the Social Presence Scale (Bailenson et al., 2001).
- **Both groups demonstrated learning, supporting blended approaches.**

7. LIMITATIONS & FUTURE DIRECTIONS

- Single-site, perception-based data.
- Suggest long-term and multi-site studies.
- Investigate hybrid methods and cost-effectiveness.

REFERENCES

THANK YOU- QUESTIONS?

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