

BACKGROUND & RATIONALE

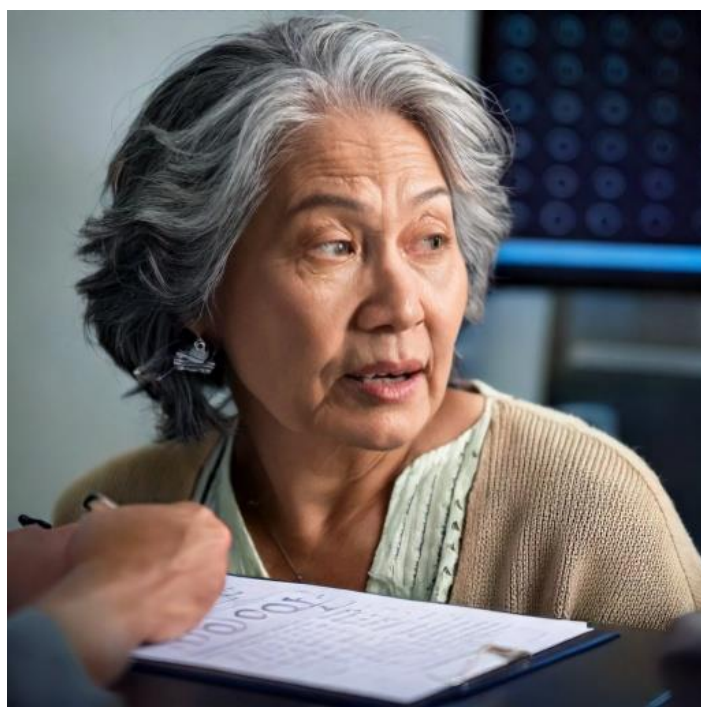
- Simulation is essential in nursing education to develop clinical judgment and decision-making;
- Technological advances have enabled immersive methods, such as holography, offering a new dimension of realism;
- Social presence and emotional engagement may be enhanced through holographic prebriefing;
- Few studies compare holography and video simulation using standardized instruments.

PURPOSE

Objective: Compare students’ perceptions of effectiveness and social presence in holographic vs. flat screen prebriefing.

HYPHOTESIS

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



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).

Design and Sample

The research was conducted at the University of Central Florida (UCF), School of Nursing, and approved by the Institutional Review Board (IRB). Data collection occurred from January to March 2025.

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. Data were collected using a Demographic Survey, the Simulation Effectiveness Tool – Modified (SET-M), and the Social Presence Scale. Descriptive and inferential statistical analyses were conducted (t-tests and chi-square tests).

# Exploring the impact of Holograms in Prebriefing on Nursing Students’ Empathy in Simulated Patient Care: a cross-over study

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RESULTS - DEMOGRAPHICS

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

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)

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)

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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 vs. pre-recorded video



DISCUSSION

Holography enhanced emotional expression and presence; Flat screen facilitated reflection and confidence during debrief; **Both groups demonstrated learning, supporting blended approaches.**

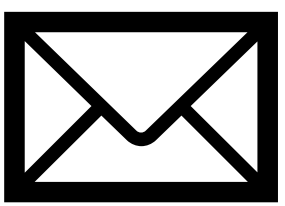
RESULTS – SET-M

These findings indicate that both simulation methods were generally perceived as effective by participants. However, **statistically significant differences emerged in specific aspects of the debriefing dimension.** All other dimensions (prebriefing and scenario itens) showed no statistically significant differences between groups, suggesting **similar perceptions of simulation effectiveness across most aspects of the simulation experience.**



RESULTS – Social Presence Scale

These findings indicate **significantly higher perceptions of social presence in the Hologram Group**, particularly in items related to realism and engagement (Presence 1, Presence 3, and Presence 5), **suggesting greater perceived interaction and immersion in the holographic simulation environment.**



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