

# An Integrated Theoretical Foundation for Artificial Intelligence Chatbots in Nursing Simulation Prebriefing

<sup>1</sup>Nikki Rose Ty-Albright MSN-Ed, RN, RNC-OB, <sup>1</sup>Lisa Nicholas Ed.D, MSN-NE, RN, CHSE, CNE, <sup>1</sup>Hyunhwa “Henna” Lee, Ph.D., MSN, APRN, FAAN  
<sup>1</sup> University of Nevada, Las Vegas, School of Nursing

## BACKGROUND

- High-fidelity simulation (HFS) provokes high state anxiety, which can impair clinical reasoning competency in prelicensure nursing students (Park & Kim, 2021; Potter et al., 2022)
- Prebriefing remains an understudied phase of the simulation sequence and lacks consistent standardization (Potter et al., 2022; Silva et al., 2022; Dileone et al., 2020).
- Related literature on artificial intelligence (AI) chatbots suggests it can impact anxiety and clinical reasoning (Benfatah et al., 2026; Chan et al., 2025; Cakir et al., 2025)

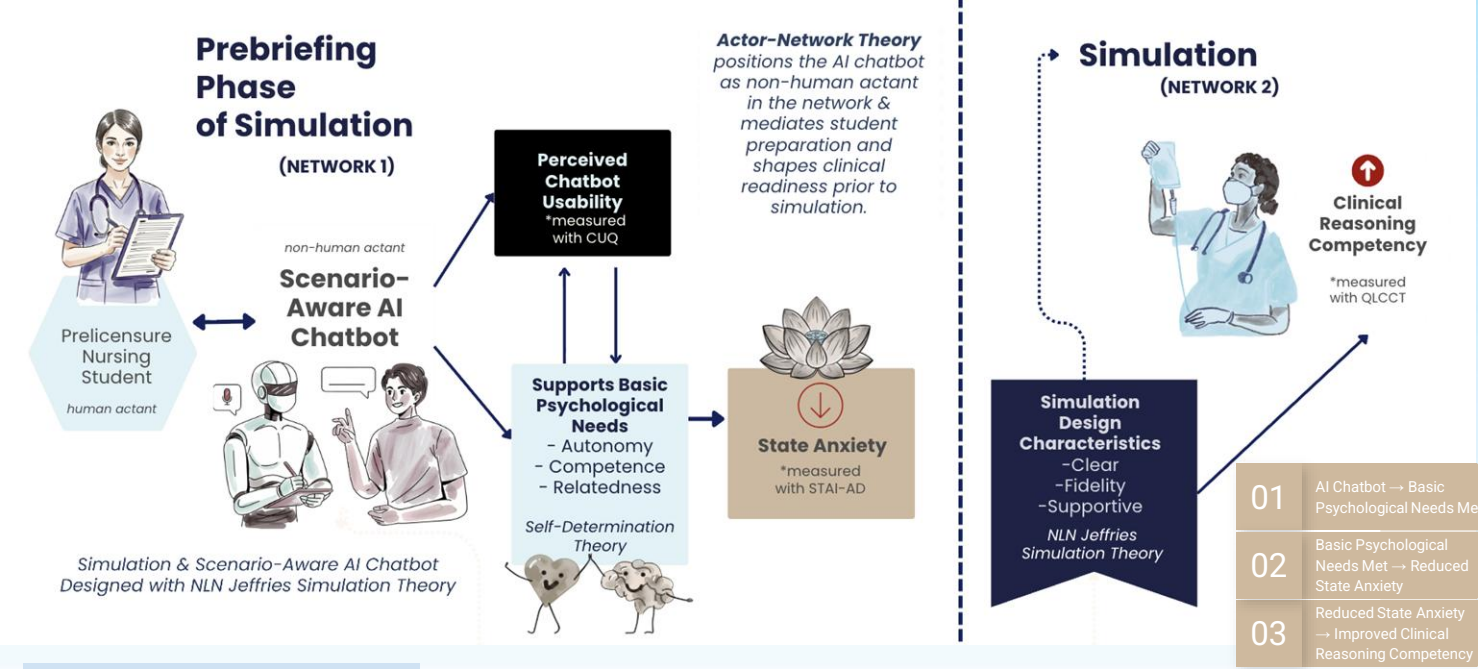
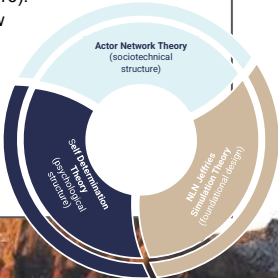
## PURPOSE

- Integrate three established theories into a cohesive framework explaining how a scenario-aware AI chatbot in prebriefing may influence state anxiety, technology usability, and clinical reasoning competency among prelicensure nursing students in high-fidelity simulations.
- The framework presented is intended to guide future inquiry.

## METHODS

A structured review and synthesis of current literature informed the integration of three theories, each contributing a distinct dimension to the model.

- **Actor-Network Theory (ANT)** → frames the student as a human actant and the AI chatbot as a non-human actant within two networks: prebriefing and simulation (Latour, 2005, as cited in Booth et al., 2016).
- **Self-Determination Theory (SDT)** → explains how chatbot interaction may support the basic psychological needs of autonomy, competence, and relatedness (Ryan & Deci, 2020).
- **NLN Jeffries Simulation Theory** → contributes the foundation base, governing the design of both the chatbot and the simulation itself (Jeffries, 2016, as cited in Cowperthwait, 2020).



## APPLICATION

**Two-Network System:** Prebriefing Phase (Network 1) & Simulation Phase (Network 2)

**Chatbot usability** is an important component to network stability. High usability enables psychological readiness, whereas poor usability risks destabilizing the network and escalating anxiety.

| Construct                     | Instrument                                      | Measured                               |
|-------------------------------|-------------------------------------------------|----------------------------------------|
| State anxiety                 | STAI-AD (State-Trait Anxiety Inventory – Adult) | Pre-prebriefing and post-simulation    |
| Perceived chatbot usability   | CUQ (Chatbot Usability Questionnaire)           | Post-simulation                        |
| Clinical reasoning competency | QLCCT (Quint Leveled Clinical Competency Tool)  | During simulation, by a nurse educator |

## DISCUSSION

- Reframes AI-driven tools in simulation as purposeful components within a learning network.
- Provides nurse educators, simulation specialists, and researchers a theoretically grounded roadmap for designing and evaluating AI-enhanced prebriefing
- Positions AI integration as a support for, rather than a replacement of, expert faculty.

