

Survey Instrument

To assess students' perceptions of collaboration quality, self-efficacy, and learning outcomes following their participation in a business simulation, a post-simulation survey was developed using validated and adapted Likert-scale measures. The survey consisted of four main constructs, each operationalized through multi-item scales to ensure reliability and validity. All items were measured on a 5-point Likert scale (1 = *Strongly Disagree* to 5 = *Strongly Agree*), unless otherwise specified.

1. Collaboration Quality

To evaluate teamwork dynamics, an adapted version of the Teamwork Skills Questionnaire (TSQ) was used, focusing on three key dimensions: communication, peer feedback, and role clarity. Sample items included:

- *"My team communicated effectively to solve problems."*
- *"Peer feedback improved my decision-making."*
- *"Team roles were clearly defined during the simulation."*

2. Self-Efficacy

Self-efficacy was measured using a shortened version of Chen et al.'s (2001) General Self-Efficacy Scale, adapted for business simulation contexts. Two core items were included:

- *"I feel confident analyzing business data after the simulation."*
- *"I can apply simulation strategies to real-world business scenarios."*

3. Perceived Learning Outcomes

A custom scale was developed to capture self-reported skill development, with items such as:

- *"The simulation improved my strategic thinking skills."*
- *"I better understand core business concepts after this activity."*

4. Perceived Simulation Performance

Students rated their team's success using two custom self-assessment items:

- *"Our team achieved the simulation's financial goals."*
- *"I contributed meaningfully to my team's success."*

5. Demographic and Control Variables

The survey concluded with two categorical questions:

- Academic discipline (Business, Other).
- Prior simulation experience (Yes/No).

Pilot Testing and Validation

Before full deployment, the survey was piloted with 15 students to assess clarity and internal consistency. Cronbach's alpha for each subscale exceeded 0.75, confirming reliability. Minor revisions were made to phrasing based on feedback (e.g., simplifying "strategic thinking" to "decision-making").

Administration

The survey was distributed digitally (Qualtrics) immediately post-simulation to minimize recall bias. Participants completed it in 5–7 minutes on average.