

## BACKGROUND & INFORMATION

### The Challenge

Nursing education requires more than technical competence. Nurses must demonstrate clinical reasoning, emotional resilience, rapid decision making, and collaboration under pressure. Research shows that nursing students experience high academic and clinical stress and often struggle to apply theoretical knowledge in practice. Because errors in nursing can be life-or-death, instructional strategies must strengthen critical thinking and teamwork.

### Educational Escape Rooms (EERs)

Educational Escape Rooms are immersive, simulation-based learning experiences that combine clinical realism, gamification, and collaborative problem solving.



### PURPOSE OF STUDY

This study examines how role assignment and competition influence knowledge acquisition and collaborative problem-solving dynamics among nursing students in an educational escape room. Findings aim to guide more effective simulation design.

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## RESULTS

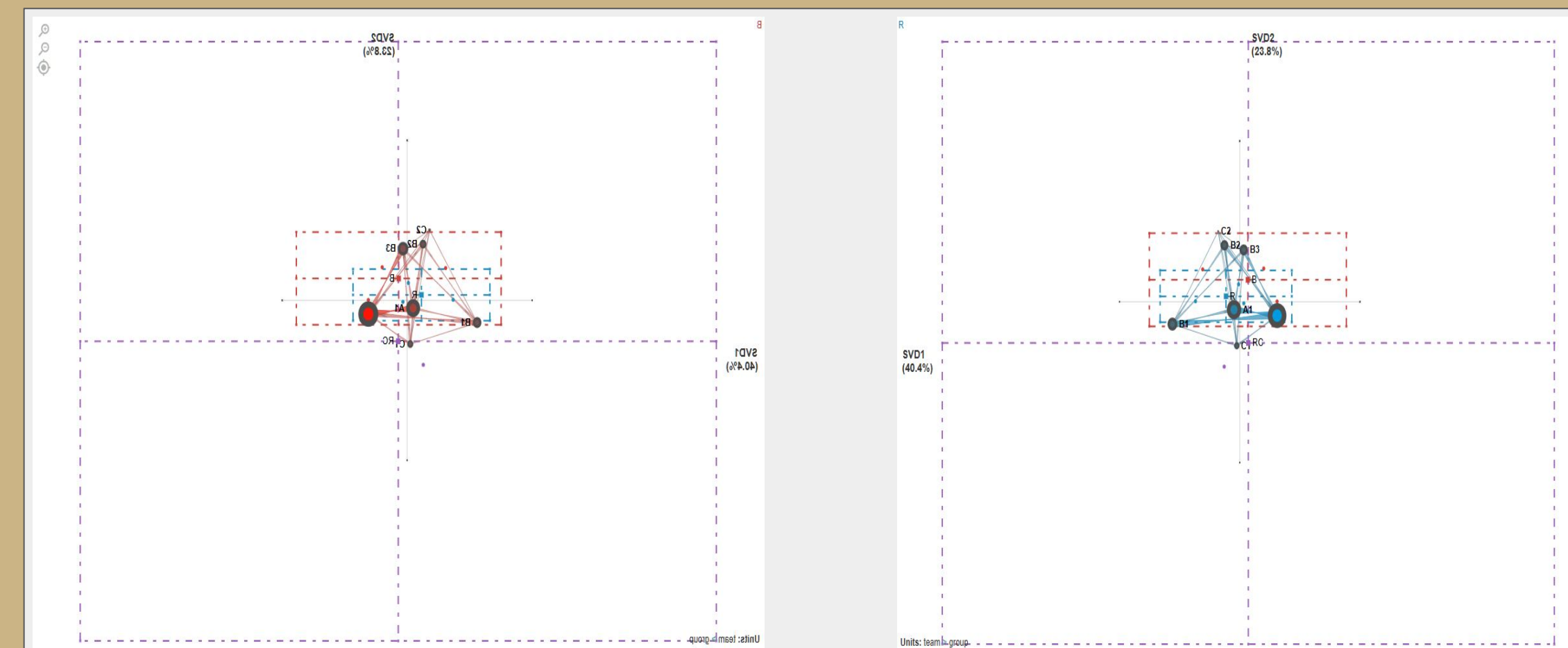


Figure 1: Results to baseline (rooms 1-3)

Figure 2: Results to role assignment (rooms 4-6)

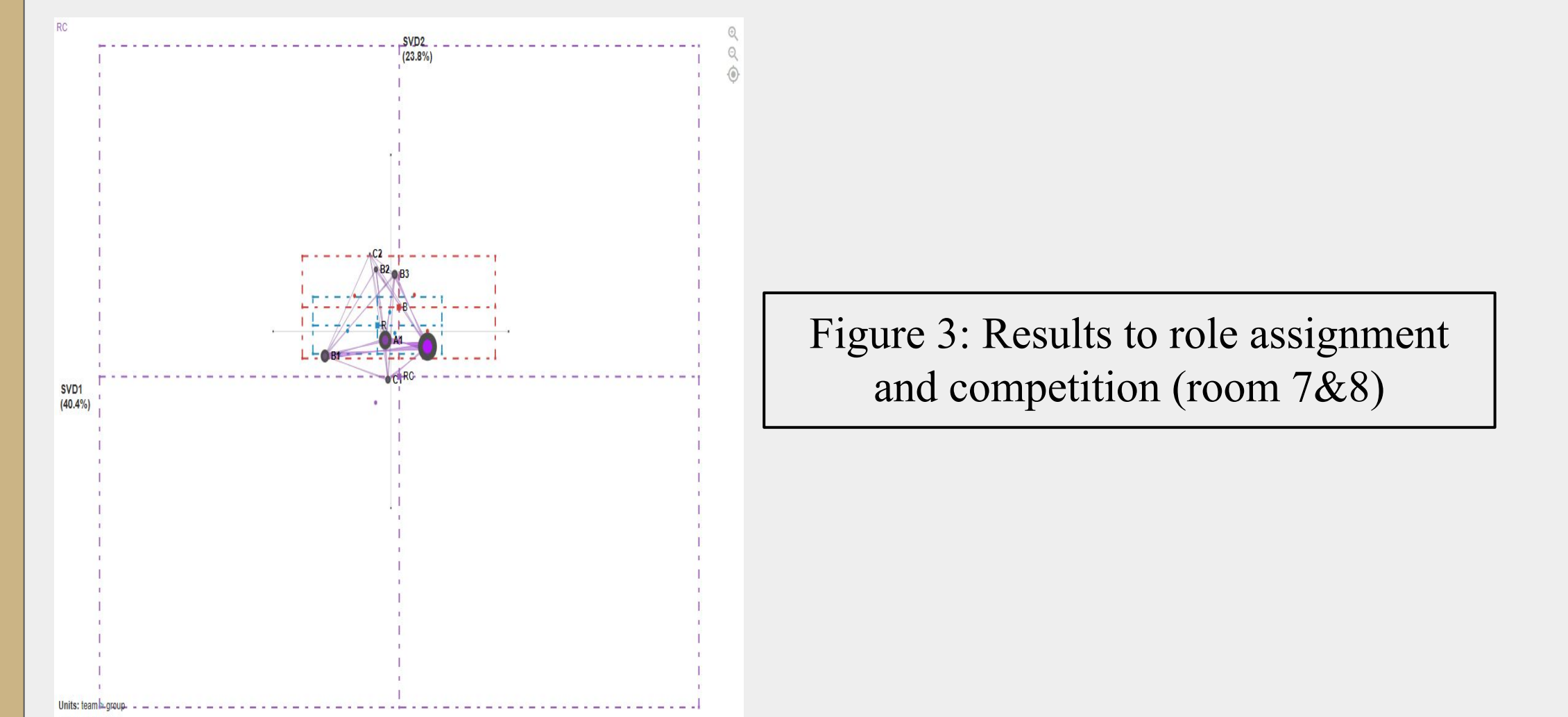


Figure 3: Results to role assignment and competition (room 7&8)

- There was no significant difference among conditions (figures 1-3)
- There were significant differences among teams, especially in relation to intensity among nodes
- The structure of the networks is consistent showing the collaborative problem-solving process was regulated by EER

## DISCUSSION

### Key Findings

- Role assignment influenced how teams built shared understanding.
- Students with assigned roles relied more on knowledge sharing and progress monitoring.
- Students without assigned roles spent more time negotiating strategies.
- Competitive elements did not produce excessive stress but may influence speed versus reasoning priorities.
- The sequential structure reinforced assessment before intervention and reduced premature clinical decisions.

### Interpretation

Findings support collaborative learning theory suggesting that structured roles promote coordination and accountability. Role clarity appeared to streamline teamwork by reducing the need for repeated negotiation.

Although competition is sometimes associated with increased anxiety, student feedback did not indicate harmful stress levels. However, careful balance remains important in complex clinical simulations.

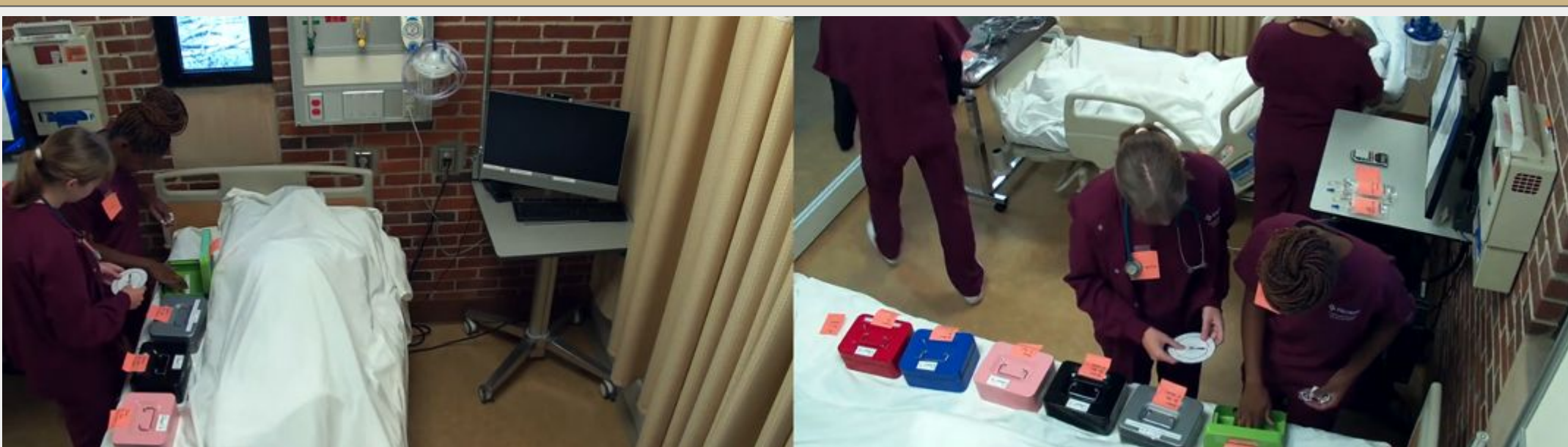
The escape room design itself shaped reasoning patterns. By requiring assessment before treatment, the structure helped students avoid tunnel vision and encouraged reflective clinical thinking.

### Limitations

- Small sample size
- Groups drawn from different semesters
- Natural leadership sometimes overrode assigned roles
- Escape room performance does not equal clinical competence

Findings should be interpreted as exploratory.

## METHODS



- 8 different rooms with 4 nursing students in each
- Students spent 30 minutes doing the assigned tasks in the educational escape rooms
- When designing the escape rooms, the key objectives focused on teamwork, puzzles, and simulation fidelity
  - Ex. stimulating hypervolemia caused by sepsis
- The students were assigned roles: assessment nurse, medication nurse, intervention nurse, and monitoring nurse
- Using an ordered network analysis (ONA) and coding scheme based on Sun et. al. 2020 and Buseyne et. al. 2024 to code behavior and actions
  - ONA examines the connection of elements develop over time
  - Our inter-rater reliability between research assistants was measured using Cohen's kappa

## IMPLICATIONS & FUTURE DIRECTIONS

This study provides guidance for nursing educators designing escape room simulations.

- Structured role assignment may enhance collaboration efficiency.
- Competitive elements should be carefully implemented to preserve reasoning quality.
- Escape room design influences not only knowledge gains but collaborative reasoning processes.

Future research should:

- Compare conditions within the same semester
- Examine long-term knowledge retention
- Explore additional design features
- Investigate how trust and team bonding influence performance

## REFERENCES

