Modified Dental Anesthesia Simulation Model Improves Skills and Willingness for Dental Students

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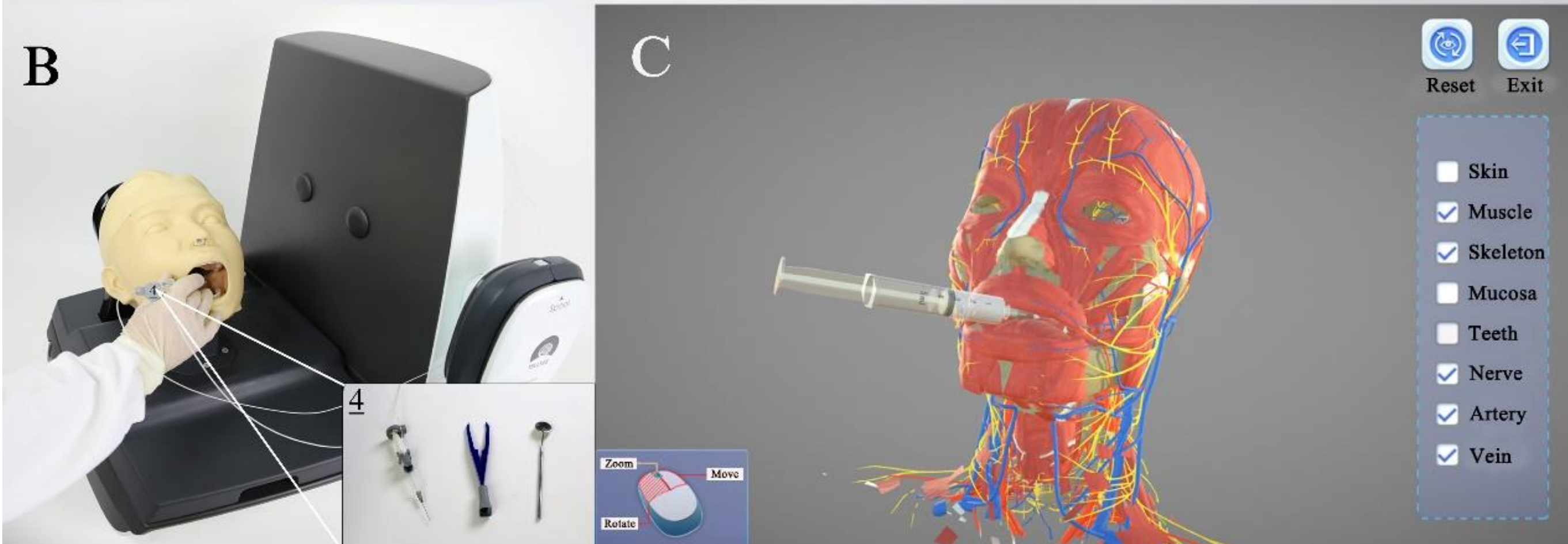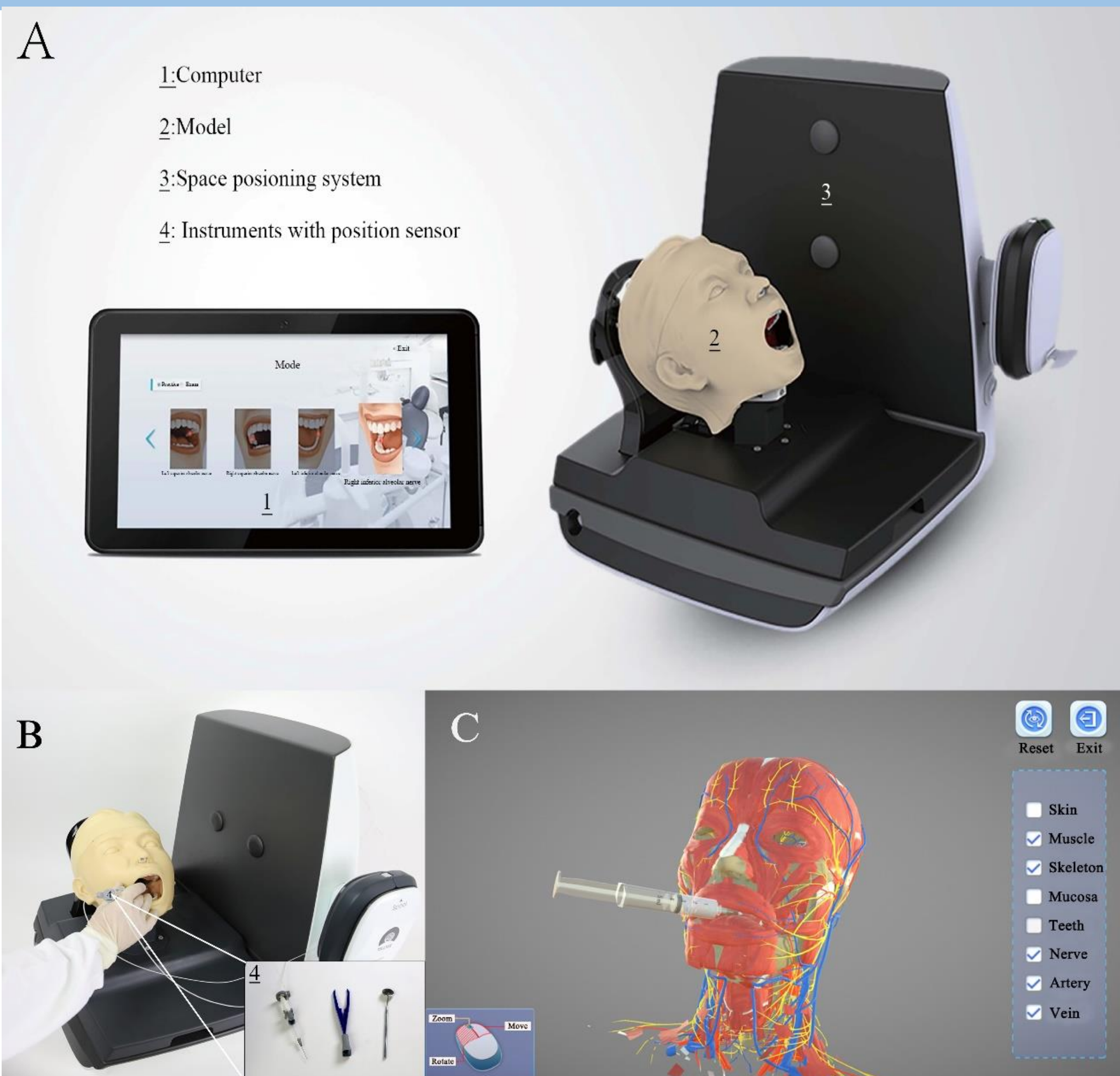[2]Department of Prosthodontics, Hospital of Stomatology, Tianjin Medical University, China

Purpose

Inferior alveolar nerve block (IANB) training is important for dental students. This work aims to evaluate the teaching effects of a **modified dental anesthesia simulation model (DASM)** on inferior alveolar nerve block (IANB) practice teaching. The modified DASM integrated three-dimensional imaging technology and a three-dimensional positioning system to support IANB teaching.

Methods

From Jan 2020 to Aug 2021, 63 dental students were divided into two groups for IANB training, the analog simulation (AS) group (N=33) using modified DASM for IANB training and the student-to-student (SS) group (N=30) using the student-to-student dental local anesthetic training pattern. Students carried out theory examination, skill assessment, and questionnaires after training session and internship.
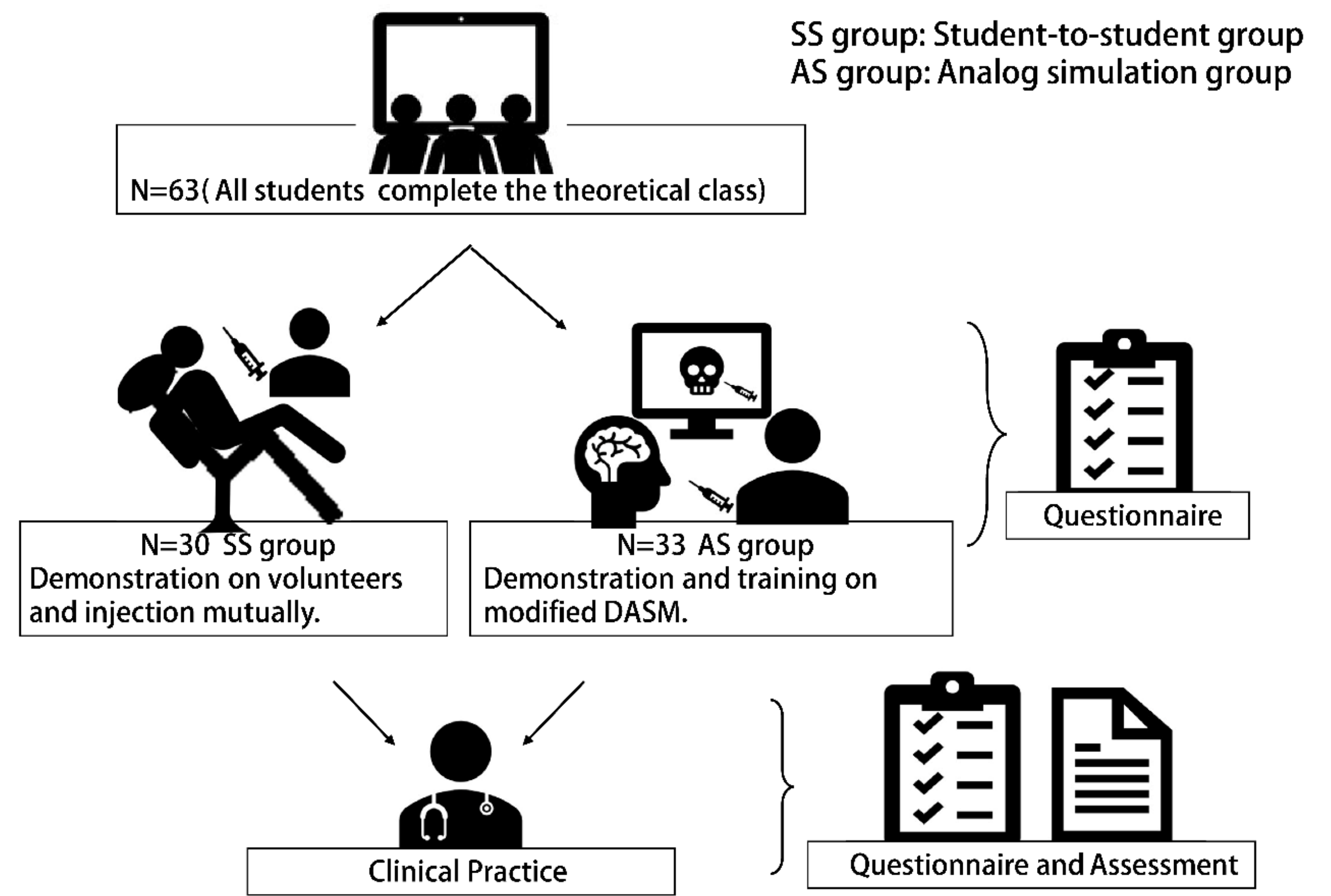

Results

Modified dental anesthesia simulation model. A. Principal components; B. Students trained on the modified DASM; C. Real-time trajectory tracking in virtual 3D model.

Item	Group		
	AS (N=33)	SS (N=30)	Total (N=63)
I agree with using DASM before the first real-life injection.	4.4 (2-5)	4.5 (2-5)	4.4 (2-5)

Note: Response options were 1=strongly disagree, 2=partially disagree, 3=do not disagree/don't agree, 4=partially agree, and 5=strongly agree.

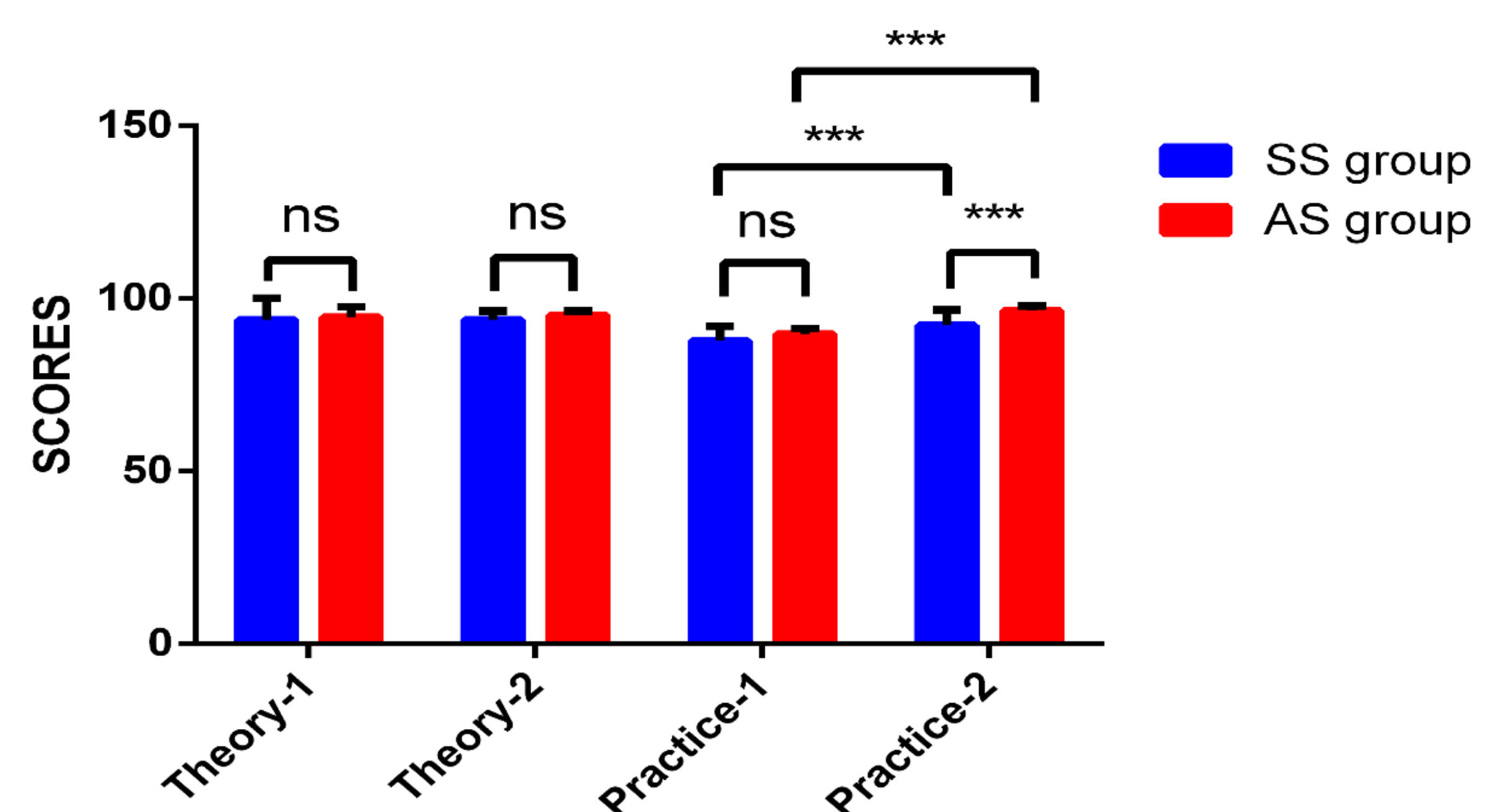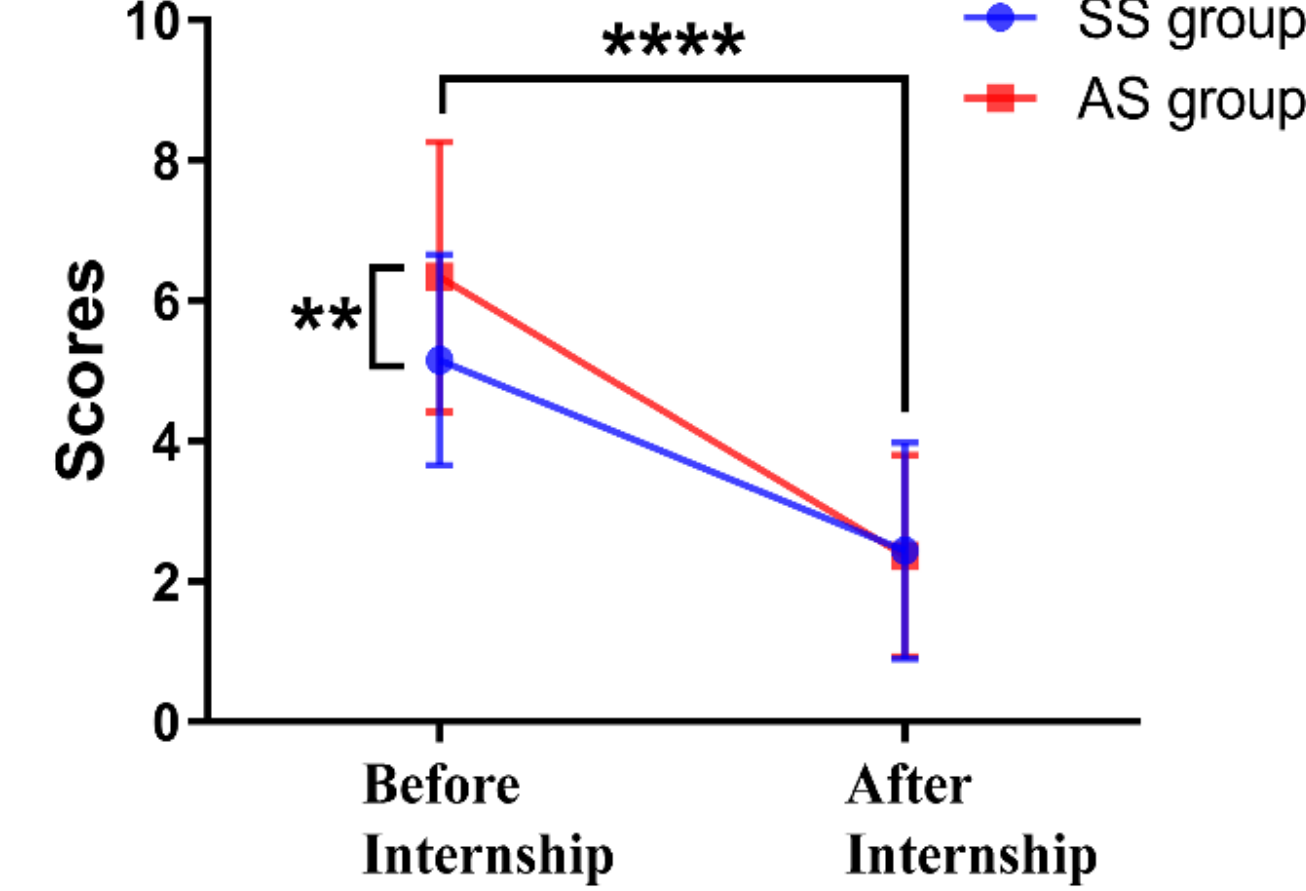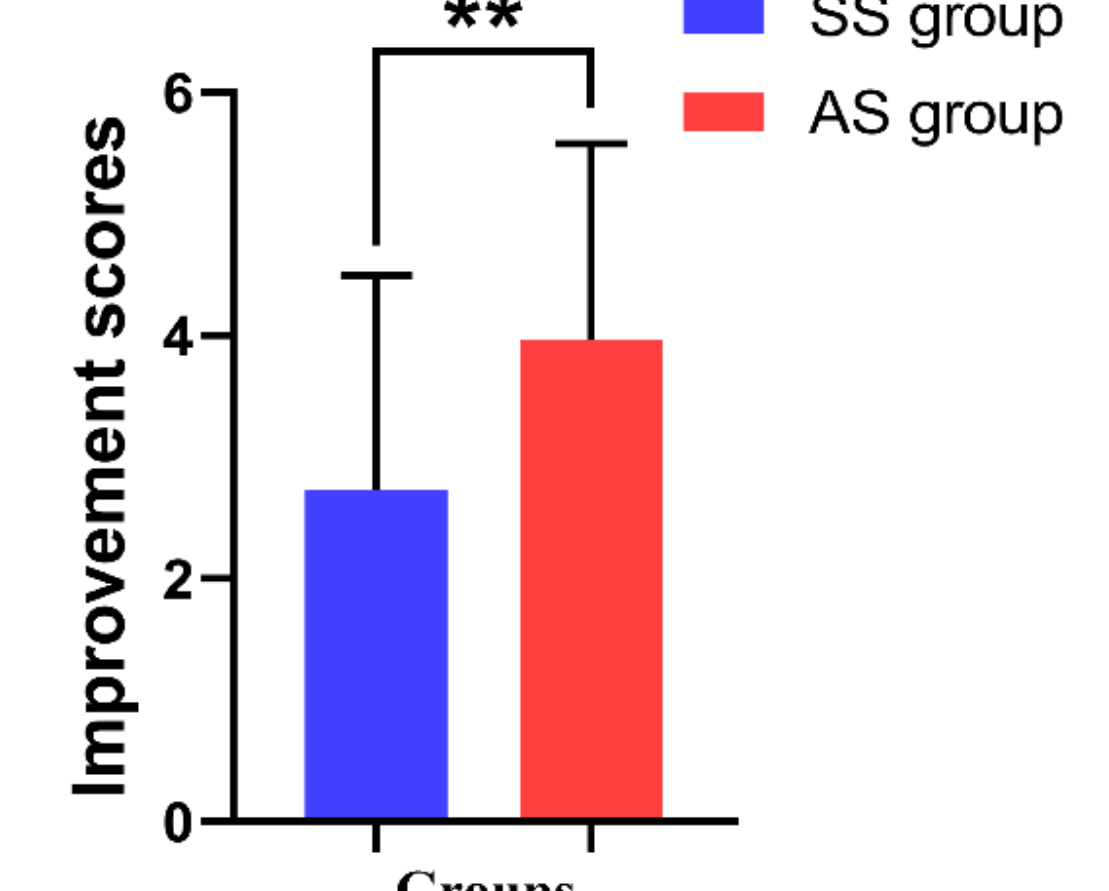|			
I agree with using only DASM to train IANB.	3 (9.1%)	1 (3.3%)	4 (6.3%)
I agree with using only the student-to-student method to train IANB.	6 (18.2%)	4 (13.3%)	10 (15.9%)
I agree with using DASM first, followed by the student-to-student method to train IANB.	17 (51.5%)	19 (63.3%)	36 (57.1%)
I agree using the student-to-student method first followed by DASM to train IANB.	0	0	0
No opinion.	7 (21.2%)	6 (20.0%)	13 (20.6%)

Feedbacks. Students' responses on their willingness towards the modified DASM and different training patterns.

Outcomes. A. Theory and practice score of two groups. Theory-1: Theory score after training; Theory-2: Theory score after internship; Practice-1: Practice score after training; Practice-2: Practice score after internship; B. Anxiety score of two groups; C. Improvement of anxiety score of two groups after internship.

Conclusions

The modified DASM could improve the **long-term IANB skills** than traditional student-to-student pattern. The **willingness** of students to perform IANB also increased by modified DASM. **This modified DASM is an effective adjunct for IANB practice teaching.**