

## 1 Objectives



- In Japan, **most first year medical students take basic science courses**, such as physics.
- Some universities offer simulation learning to first-year students, but **students have few hands on experience because professors spend time lecturing on how to use simulation learning.**



- Before entering medical school, **many students think they can obtain immediate clinical skills**, such as surgical skills

This curriculum might disappoint them and lower their motivation.

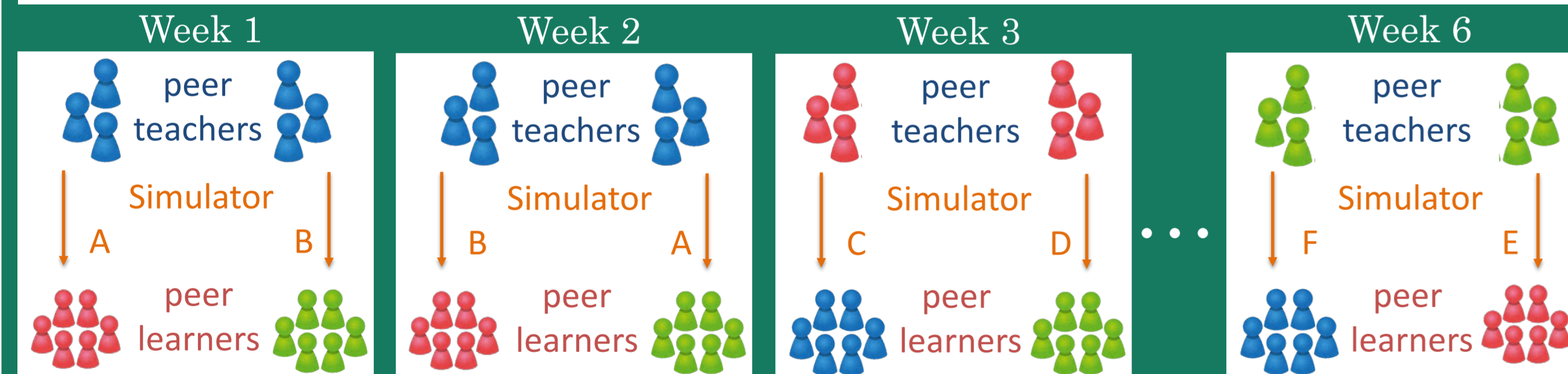
This study conducted and clarified the effectiveness of a course in which **peer teaching** was used to teach basic scientific knowledge and related medical procedures.

**Take-home Messages:** Simulation education using **peer teaching** of first-year medical students was feasible:

- the students learned the value of learning basic science,
- peer teachers and learners practiced with a simulator for sufficient periods.

## 2A Methods (Simulation education using peer teaching)

- 20 students were divided in 3 groups. We have **the peer teachers**, and **2 groups of peer learners**.
- Every 2 weeks they rotate roles. ◆ The class: 70-minute period per week for six weeks.
- We intervened only when necessary and if the peer teachers were incorrect.



### Simulator

- Blood Sampling
- Auscultation
- Defibrillation
- Echocardiogram
- Abdominal Echo
- Tracheal Intubation
- Bronchoscope
- Cardiac / Lung sound



## 2B Methods (clarifying the learning effect)

### Kirkpatrick Level 1: Questionnaire

The teaching sufficiency, science learning, learning ease and satisfaction, and test difficulty.

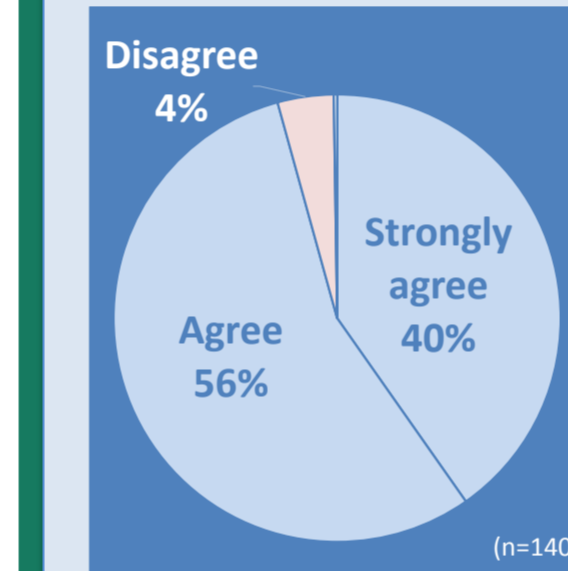
### Kirkpatrick Level 2: Observation

The students were observed and the learning effect was measured.

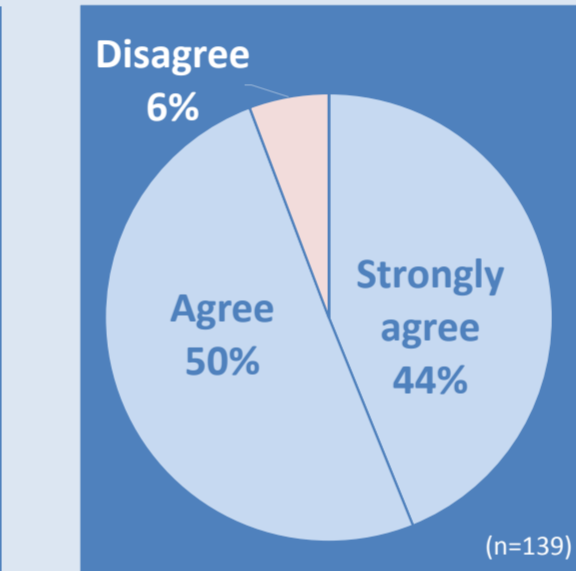
## 3 Results & Discussion

### Lecture

Q. The teaching materials contain sufficient contents of basic science.

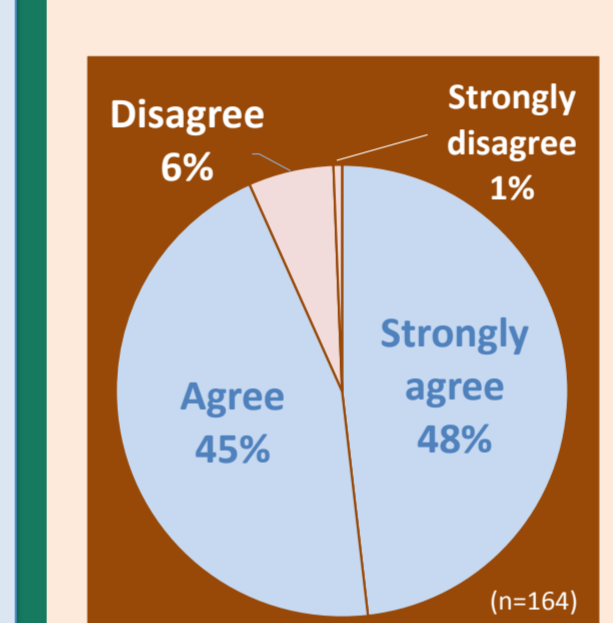


Q. The peer teacher gave a lecture on the medical procedure sufficiently.

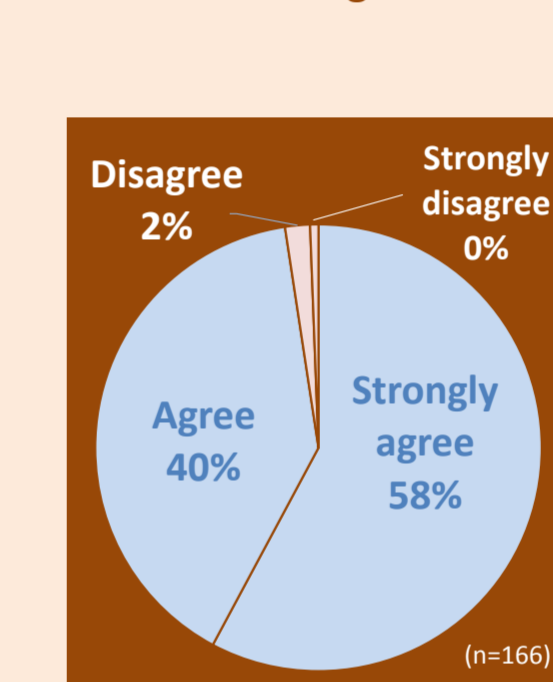


### Training

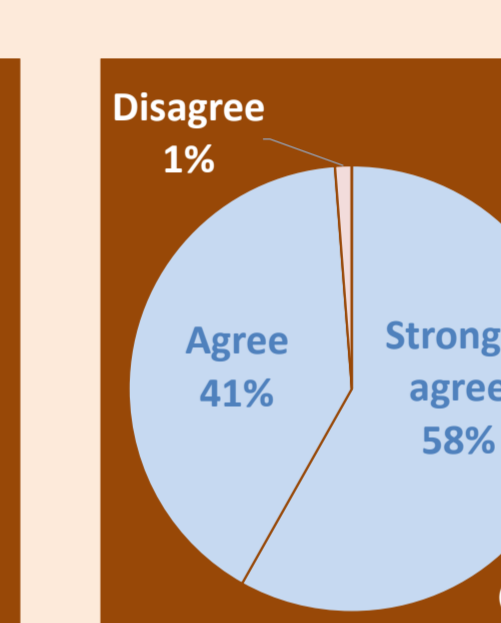
Q. The training was easy to understand.



Q. The training was fun.

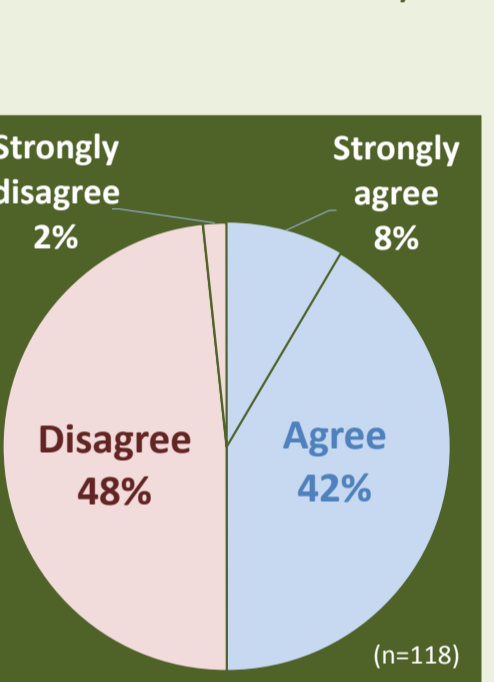


Q. The training was effective.



### Test

Q. The test was easy.



Peer Teacher: We tried to study hard in order to teach difficult contents.

- There were many technical terms we've never heard of, but we could understand it because the explanation was easy to understand.
- The teacher showed an anatomical chart and explained it in an easy-to-understand way.

Observation: Peer teachers thought of creative ways to remember the names of individual bronchial. The teaching materials were easy to understand with many figures.

Peer Teacher: We devised various ways of teaching, for example making it into a game of time attack.

- I was able to use the simulator many times, so I could understand the medical procedure very well.
- The teacher explained the procedure in detail and taught us points of caution.

Observation: Many students helped struggling learners, which resulted in high quality team learning. Peer teachers and learners actively discussed difficult points and questions.

Peer Teacher: Gained beneficial knowledge from developing tests.

- The teacher pointed out our mistakes immediately and went over the materials thoroughly.
- The content for the actual medical procedure was covered in lecture.

Peer Learners: There were points I didn't understand. It was difficult because the questions on the exam were not covered in class.

## 4 Conclusion

- Almost all students were satisfied with:
  - the amount of basic science learned,
  - their ability to use the simulations,
  - the knowledge gained by developing/taking tests.
- Because lecturers intervened as little as possible, the students actively discussed and helped peers unable to perform the procedure, which is unique to peer teaching.

**Peer teaching is an effective way to teach via simulation.**