

**MP34-10**



# The utility of mixed reality model projection in ultrasound training for medical students

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## Introduction:

### Needs:

**More efficient ultrasound training method for the beginners.**

Mixed reality (MR)

+

Ultrasound (US) training

=

Observe and manipulate  
3D objects in physical space

Scan inner body  
from outside

Scan human body while  
looking at 3D inner  
organ models  
superimposed

## Methods:

### MR-assisted training

Renal ultrasound training  
wearing the HoloLens  
(Microsoft) and looking at the  
3D organ model superimposed  
on to the subject's abdomen



### Study design

Group A	Group B
Conventional training	MR-assisted training
	Questionnaire 1
MR-assisted training	Conventional training
	Questionnaire 2



## Results:

Subjective assessments from Likert scale Qs (Group A: n=7, Group B: n=8)

MR-assisted training showed significant improvement in;

- acquisition of the organ positions
- self-efficacy to visualize the kidney
- ease in detecting kidney
- recommendation to other students
- renal hilum inspection
- self-efficacy to conduct renal US
- expected learning effect from the training (p<0.05 for all).

## Conclusion:

MR-assisted training showed;

- improved self-assessment in
  - 1. achievement level
  - 2. satisfaction level
  - 3. self-efficacy level
- lowered difficulty in the training

**May result in rapid  
ultrasound skill  
proficiency**