

# The impact of self-directed learning of cardiopulmonary resuscitation skills with interactive video

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| <b>Submission date</b><br>26/06/2025   | <b>Recruitment status</b><br>No longer recruiting | <input type="checkbox"/> Prospectively registered<br><input type="checkbox"/> Protocol                                  |
| <b>Registration date</b><br>26/06/2025 | <b>Overall study status</b><br>Completed          | <input type="checkbox"/> Statistical analysis plan<br><input type="checkbox"/> Results                                  |
| <b>Last Edited</b><br>27/06/2025       | <b>Condition category</b><br>Other                | <input type="checkbox"/> Individual participant data<br><input checked="" type="checkbox"/> Record updated in last year |

## Plain English summary of protocol

### Background and study aims

Cardiopulmonary resuscitation (CPR) is a vital life-saving procedure used when someone's heart stops beating. Proper CPR training for healthcare students is essential to improve patient survival in emergencies. This study aims to find out whether using an interactive video-based self-learning method before practical training helps nursing students learn and retain CPR skills better than the traditional instructor-led seminar alone.

### Who can participate?

Undergraduate nursing students enrolled at Universidad CEU San Pablo who are taking the CPR training course.

### What does the study involve?

Participants will be randomly assigned to one of two groups. One group will receive the traditional instructor-led CPR seminar. The other group will first complete an interactive video-based self-learning module (called Simulation Zone 0) before attending the seminar. The students' CPR skills will be tested right after training, and then again at 3 and 6 months, to see how well they remember and apply the skills.

### What are the possible benefits and risks of participating?

Participants may benefit by improving their CPR skills and confidence through the innovative video learning method. There are no known risks associated with participating in the study. The study does not involve any treatment, only training and assessment.

### Where is the study run from?

The study is run from the Universidad CEU San Pablo, Spain.

### When is the study starting and how long is it expected to run for?

September 2023 to September 2024

Who is funding the study?  
Investigator initiated and funded

Who is the main contact?  
Mr Alvaro Trampal Ramos, Alvaro.trampalramos@ceu.es

## Contact information

### Type(s)

Public, Scientific, Principal investigator

### Contact name

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## Additional identifiers

## Study information

### Scientific Title

Impact of self-directed learning of cardiopulmonary resuscitation skills with interactive video:  
pilot randomized clinical trial

### Acronym

CPR-VideoStudy

### Study objectives

This study hypothesises that the application of zone 0 of the SimZones significantly improves the acquisition of CPR skills in nursing students, compared to those who receive training through hands-on seminars with the instructor's instructions. This hands-on learning seminar is classified as Zone 1 according to Roussin's SimZones. Zone 0 allows students to practice autonomously and receive immediate feedback through virtual platforms, which can enhance their learning and knowledge retention. Therefore, Zone 0 of Roussin's SimZones is particularly relevant for this study.

### Ethics approval required

Ethics approval required

### Ethics approval(s)

approved 26/09/2023, Comité de Ética de Investigación de la Universidad San Pablo-CEU (Urbanización Montepríncipe, Boadilla del Monte, 28668, Spain; +34 91 372 47 00; investigacion@ceu.es), ref: 768-23-89

## **Study design**

Randomized controlled pilot study

## **Primary study design**

Interventional

## **Study type(s)**

Efficacy

## **Health condition(s) or problem(s) studied**

Cardiopulmonary resuscitation (CPR) training and competency acquisition in nursing students.

## **Interventions**

This randomized pilot clinical trial was conducted to evaluate the effectiveness of Zone 0 for the acquisition of basic CPR skills using IV and an ad hoc video. The study started in December 2023 and ended in September 2024. Peyton's methodology has been followed, which is composed of four main steps: demonstration, deconstruction, comprehension and performance. For randomization, the free application "Graphpad" available at [www.graphpad.com](http://www.graphpad.com) was used.

Participants will be randomly assigned to one of two groups. One group will receive the traditional instructor-led CPR seminar. The experimental group will first complete an interactive video-based self-learning module (called Simulation Zone 0) before attending the seminar. This session consisted of following the learning sequence, following the Peyton steps methodology. Through an interactive video with immediate feedback and the online application [stornaway.io](http://stornaway.io) they performed the steps in the acquisition of CPR skills. The sequence performed by the students was:

1. Viewing of a video performing ad hoc of the basic CPR sequence without interruptions.
2. They watched the same video in which cuts are made at key points of the CPR skills. In these cuts, the technique being performed and its importance are explained.
3. After viewing the video with pauses, the student watches the same video again and has to decide what to do at each point. The video gives two or three options and the student has to choose the option he/she consider correct. In case of selecting the wrong option, the video gives feedback and explains the correct option; on the contrary, if the student selects the correct option, the video continues with the next scene. The student can watch the video as many times as he/she wants.
4. Finally, through the Laerdal Little Anne® task trainer with QualityCPR® system, students perform the complete CPR sequence with autofeedback of the compressions the performed before the competency assessment.
5. Upon completion of the competency acquisition steps, the student performed the CPR competency assessment, supervised by an instructor, who did not give any feedback to the student before or after the assessment.

## **Intervention Type**

Behavioural

## **Primary outcome(s)**

Acquisition and retention of cardiopulmonary resuscitation (CPR) competencies are measured using a standardized practical skills checklist during simulated CPR scenarios, scored as a percentage of correct actions performed, immediately after training, and at 3 months and 6 months post-training to evaluate retention over time

### **Key secondary outcome(s)**

1. Student satisfaction with the training method, measured using a validated Likert-scale questionnaire administered immediately after the training session
2. Self-reported confidence in performing CPR, measured using a standardized confidence survey at baseline (before training), immediately post-training, and at 3 and 6 months follow-up
3. Knowledge retention related to CPR protocols, measured using a multiple-choice questionnaire at baseline, immediately post-training, and at 3 and 6 months follow-up
4. Quality of CPR performance, measured through automatic feedback from simulators quantifying parameters such as compression rate, compression depth, and ventilation time, assessed immediately post-training and at 3 and 6 months follow-up

### **Completion date**

30/09/2024

## **Eligibility**

### **Key inclusion criteria**

1. Undergraduate nursing students
2. Enrolled in the simulation subject
3. Provided informed consent

### **Participant type(s)**

Learner/student

### **Healthy volunteers allowed**

No

### **Age group**

Adult

### **Lower age limit**

18 years

### **Upper age limit**

44 years

### **Sex**

All

### **Total final enrolment**

36

### **Key exclusion criteria**

1. Students with prior CPR certification within the past 12 months
2. Refusal to participate

**Date of first enrolment**

01/11/2023

**Date of final enrolment**

15/11/2023

## Locations

**Countries of recruitment**

Spain

**Study participating centre**

**CEU San Pablo University**

Urbanización Montepríncipe

Boadilla del Monte

Spain

28668

## Sponsor information

**Organisation**

Universidad San Pablo CEU

**ROR**

<https://ror.org/00tvate34>

## Funder(s)

**Funder type**

Other

**Funder Name**

Investigator initiated and funded

## Results and Publications

## Individual participant data (IPD) sharing plan

No individual participant data will be shared beyond the research team due to confidentiality and privacy concerns.

## IPD sharing plan summary

Not expected to be made available

## Study outputs

| Output type                                   | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---|---------|--------------|------------|----------------|-----------------|
| <a href="#">Participant information sheet</a> |         |              | 26/06/2025 | No             | Yes             |