

Letter to the Editor

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## Enhancing Cardiopulmonary Resuscitation Education Through Game-Based Augmented Reality Face Filters

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*To the Editor,*

By 2025, it is estimated that 4 billion people will use augmented reality (AR) face filters<sup>1</sup>. AR face filters are computer-generated effects applied in real time to real images from the front camera of a smartphone. The use of AR face filters on social media platforms is an unexplored pedagogical tool for teaching cardiopulmonary resuscitation.

In the Snap AR studio<sup>2</sup> we developed an interactive game-based Instagram AR face filter that teaches users to perform 30 chest compressions and two rescue breaths by tapping and pressing on the smartphone screen to the beat of a song Stayin' Alive by Bee Gees. If the user does not perform chest compression in the correct frequency (100-120 min<sup>-1</sup>) and does not give rescue breaths (within 3 seconds) the peripheral saturation (SpO<sub>2</sub>) drops to zero and the game is over (Figure 1).

To test the game-based Instagram AR face filter, we used a modified questionnaire<sup>3</sup> with a Likert scale with six options: a scale of 1, or “Strongly disagree”, to 6, or “Strongly agree”. We evaluated the game with sixteen nurses and two medical students from Croatia (n=6), Slovenia (n=4), Lithuania (n=2), the Czech Republic (n=2), Portugal (n=1), France (n=1), Slovakia (n=1), and Lithuania (n=1). All participants signed informed consent before testing the AR face filter. Study inclusion criteria necessitated that participants have taken adult basic life support training within the past three years and have an Instagram account.

Most of the participants were women with a mean age of 22.6±2.7 years. The vast majority (78%, n=14) reported that they are very comfortable using smartphones for communication; and were familiar with how to apply AR face filters. On average, 28% (n=5) used Instagram AR face filters daily, 61% (n=11) for entertainment purposes and about one-third (28%, n=5) had never used them. The majority (67%, n=12) reported enjoying learning CPR contents using the game-based Instagram AR face filter (67%, n=12), would repeat such learning experience in the future (72%,

n=13), and would recommend the game-based Instagram AR face filter as a learning tool to others (72%, n=13). Based on their previous experience in training adult BLS, the game-based Instagram AR face filter was rated slightly more interesting than other learning methods (e.g., using low-fidelity manikins) (56%, n=10), and the students agree that learning contents related to CPR is meaningful and important (100%, n=18).

Using an Instagram AR face filter is a novel learning method for teaching CPR. Leveraging one of the most widely used social media platforms can raise public awareness about CPR and facilitate lay education. Using an Instagram AR face filter can be a complementary pedagogical tool to teach CPR. Next possible steps might be to employ the Instagram AR face filter as a learning tool for the upcoming World Restart a Heart Day<sup>4</sup> and explore the reach of using such type of mass media.

### **Conflict of interest**

Nino Fijačko is a member of the ERC BLS Science and Education Committee and mentee of ILCOR Task Force Education Implementation and Team. Robert Greif is ERC Director of Guidelines and ILCOR, and ILCOR Task Force chair Education Implementation and Team. Todd P. Chang, Kiril Krsteski, and Ruth Masterson Creber declare that they have no conflict of interest.

### **Acknowledgment**

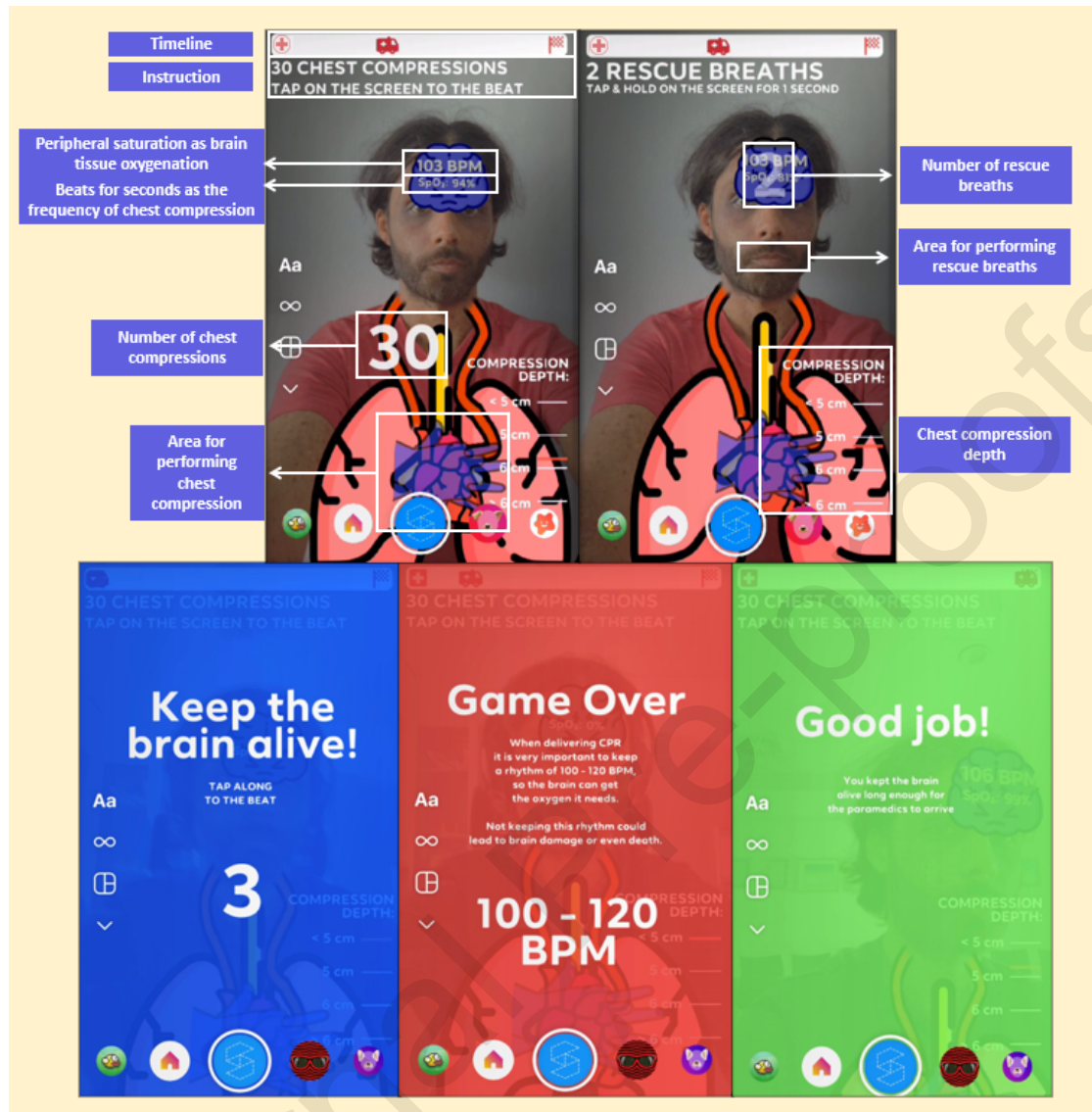
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**Figure 1:** Game-based Instagram AR face filter for teaching importance of performing CPR. For better visualization of how the AR face filter works we prepared the video: [https://www.youtube.com/watch?v=2juG8AFHR8M&ab\\_channel=NinoFija%C4%8Dko](https://www.youtube.com/watch?v=2juG8AFHR8M&ab_channel=NinoFija%C4%8Dko). Also, the AR face filter will be available soon on: <https://mobicpr.si/>.

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