Opinion

CPR Training with Augmented Reality with Smart Glasses: A New Reality?

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Technological advances have made it possible to generate new tools that can be very useful for out-of-hospital emergency care and basic life support training [1]. Basic life support is a set of techniques that allow identifying when a person is in cardiorespiratory arrest, alerting the emergency services, starting Cardiopulmonary Resuscitation (CPR). and using the Automatic External Defibrillator (AED) [2]. When this protocol is quickly initiated by the bystander who witnesses the fainting, the victim will have more options for survival [3]. Therefore, the recommendation is that the general population be taught how to act in the event of cardiac arrest, and from a very early age [4,5]. The trend in basic life support training is towards short and continuous methodologies, with simulation, gamification, and the incorporation of new tools that facilitate learning or make it more attractive [6,7]. In the latest guidelines published by the European Resuscitation Council, the need to incorporate new training tools such as virtual reality or augmented reality to promote learning of the BLS is highlighted [6]. Although the evidence on this type of methodology is very limited and it is necessary to study it more in depth, preliminary evidence suggests that students are able to apply the knowledge they learn during virtual and augmented reality sessions [1,8]. Certain modalities of virtual reality and augmented reality have been somewhat studied [8], but the trend is that they are studied more and that other modalities of virtual reality and augmented reality emerge that can be interesting both for basic life support training and for other fields of health training.

A CPR training modality with augmented reality still to be explored is through video calls with smart glasses. In this type of training, the student wears the wearable (smart glasses) that are connected via WIFI with the trainer. The trainer and the student are telecommunicated by audio and video in real time through the smart glasses. The smart glasses have a front camera and it broadcasts in streaming what the student sees in subjective vision. This allows the instructor to adapt the training and feedback based on what he/she hear and see on his/her computer, tablet or smartphone. In this type of basic life support training with smart glasses, the trainer can also have the student visualize additional graphic information on the lens of the smart glasses. For example, it could project images, gifs, or videos on victim assessment or resuscitation skills. So that the student can learn based on what the instructor explains and also shows him through the wearable itself. Since it is an educational methodology with a

wearable, this type of CPR training with augmented reality has the additional advantage that it is not necessary to hold the device while using it. This will allow the student to have their hands completely free to practice the different skills necessary to perform in cardiorespiratory arrest, which will predictably favor the dynamics of training and fluid communication between trainer and student. There are certain remote locations where basic life support training is difficult to reach, such as rural areas with low population density and long distances to the city. In these types of more isolated places, this teletraining through video calls with smart glasses could help bystanders to access learning for care in cardiorespiratory arrest. For this type of telecommunication, it would only be necessary to have smart glasses with a video call App, and good connectivity via WIFI.

Therefore, basic life support training through augmented reality with a video call with smart glasses is a methodology to be taken into consideration due to its potential in learning the knowledge and skills necessary to act in the event of cardiorespiratory arrest.

References

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