

Applying 360-Degree Videos to Interdisciplinary Training and Simulation

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Background: In order to deliver safe and effective patient care in the operating room, staff must work together as a team. Teamwork requires closed-loop communication and the ability to anticipate events. Studies have shown that interdisciplinary simulation exercises improve the efficiency with which health care providers and other ancillary staff respond to high-acuity situations. Additionally, studies have demonstrated that multimedia resources help learners recall and retain information. 360-degree video is an emerging multimedia platform, which allows users to be visually immersed in a video. Using this technology and these premises we are working with the OR nursing staff to create high-fidelity simulations and recording them in 360-degrees.

Methods: Quarterly group simulations were held with members of the nursing staff, surgical team, and anesthesia team. Participants were notified in advance that a simulation exercise was planned but details of the scenario were not disclosed. To date we have done a pediatric surgery scenario and a pediatric post-anesthesia care scenario in 360-degree video. To create a realistic experience the perioperative environment was set-up in the normal fashion using standard equipment and a mannequin patient. A 360-degree, six GoPro camera mount was positioned in the center of the room to record the simulation. Individual videos were then downloaded to a VR-capable, custom build PC and stitched together using Autopano Video Pro. The final video was uploaded to Youtube, allowing anyone with a mobile phone or computer to view it in 360-degrees.

Results: Rendering 360-degree videos from six GoPro cameras was successful with good resolution and sound. The video could be viewed from a computer, mobile device, or virtual reality headsets. Initial reception of the 360-degree recordings of the simulation was positive. OR staff who viewed the videos stated that the ability to view everything occurring simultaneously allowed them to better understand the overall scenario. Learners commented that it enabled them to discern their own individual roles within the group as well as the ongoing interplay between different services.

Conclusion: 360-degree videos provide distinct advantages over traditional videos when used for interdisciplinary simulation because it provides the participant a vantage point otherwise unobtainable. Being able to view the entire room through one video stream allows an individual from any service or even hospital administration to review safety protocols in place and ascertain if there are deficiencies in training or resources needed to respond appropriately to high-acuity situations. Additional work is required to ascertain the optimal positioning of the camera as well as improving the stitching and processing of the video.