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Simulators for Health Care Education

White Paper

Debriefing Deconstructed
A Guide to Meaningful Simulation Learning Experiences

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DEBRIEFING

As simulation education has become a core component in the preparation and development of healthcare professionals, debriefing has proliferated as a valuable teaching and learning method. Debriefing has been defined as the heart and soul of a simulation learning experience (Fanning & Gaba, 2007) and the cornerstone of experiential learning (Cantrell, 2008). Debriefing is a significant part of simulation (Schinnick, Horwich, & Woo, 2011) because it forms a connection between doing and thinking (Dreifuerst, 2012).

Simulation educators agree that a good debriefing is nonjudgmental in nature (Fanning & Gaba, 2007; Rudolph, Simon, Dufresne, & Raemer, 2006), is facilitated by a debriefer who has been trained in a theory-based debriefing method (Alexander et al., 2015; INACL Standards Committee, 2017), and occurs in a supportive environment where all participants feel safe (Fanning & Gaba, 2007; Rudolph, Raemer, & Simon, 2014). A debriefer cultivates a trusting environment in which an open, yet confidential, discussion transpires among the debriefer and the participants.

PURPOSE OF DEBRIEFING

The purpose of debriefing is to deconstruct and reconstruct the actions and thinking that occurred during a simulation learning experience (Dreifuerst, 2012; Mariani, Cantrell, & Meakim, 2014), in order to improve the future performance of the participants (Levett-Jones & Lapkin, 2014). Debriefing is a type of formative assessment because new knowledge is co-created between a debriefer and the participants, rather than merely assessing technical skills and basic understanding (Rudolph et al., 2008). During debriefing, participants are guided to reflect on the actions and thinking processes they engaged in during the simulation (Dreifuerst, 2012). Rather than merely conveying uni-directional feedback about observed behaviors (Cheng et al., 2014), feedback about the simulation and the participants' reflective thinking work in tandem to deepen the meaning in the learning (Cantrell, 2008).

> *"Several debriefing methods have been increasingly used in schools of nursing, schools of medicine, and in clinical practice settings because of the resulting positive learning outcomes."*

TRAINING IN DEBRIEFING METHODS

The ability to facilitate a debriefing is just as important as the ability to facilitate a simulation scenario or operate a manikin (Jeffries, 2005). Several debriefing methods have been increasingly used in schools of nursing, schools of medicine, and in clinical practice settings because of the resulting positive learning outcomes. Within nursing education, the National Council of State Boards of Nursing (NCSBN) and the International Nursing Association for Clinical Simulation in Learning (INACSL) agree on the value of debriefing. Both organizations recommend that nurses receive formal training in a theory-based debriefing method along with competency assessment of their debriefing skills (NCSBN, 2015; INACSL, 2016).

Formal training in a debriefing method and competency assessment of debriefing skills are essential. These skills ensure that theory-based debriefing methods are adhered to and achieve similar outcomes with participants. Training opportunities in theory-based debriefing methods are available through simulation workshops, conferences, simulation organizations, and various academic offerings. Additional research is needed to determine how best to train debriefers and assess ongoing competency since a one-time training session does not produce optimal adherence to a debriefing method (Bradley & Dreifuerst, 2016).

THE USE OF DEBRIEFING

Debriefing has origins in both the military and the aviation industry. Historically, debriefing has been used after a military experience for describing the details of a mission to the military leaders who were not on the front lines (Pearson & Smith, 1986). The purpose was to reexamine the actions that occurred in the conflict and to re-strategize for future missions.

Moreover, the aviation industry has used simulation with debriefing since multiple aviation accidents involving skilled pilots exposed the insufficiency of technical aviation skills (Billings & Reynard, 1984). Novice and expert pilots alike practice flight skills in simulation, then analyze the scenario and their performance in a debriefing (Dismukes, Gaba, & Howard, 2006).

In the 1990s, behavioral studies focused on investigating what was known as psychological debriefing (PD). In particular, researchers investigated if posttraumatic stress disorder (PTSD) could be prevented with individual PD. These studies sought to decrease the incidence of PTSD among Gulf War soldiers (Deahl, Gillham, Thomas, Searle, & Srnivissan, 1994), earthquake rescue personnel (Kenardy et al., 1996), women who had a miscarriage (Lee, Slyde, & Lygo, 1996), and victims of traffic accidents (Hobbs, Mayou, Harrison, and Warlock, 1996). The debriefing used in each of these studies was not described well, except that the onset of debriefing was typically within 45 minutes of the event. While these studies did not report a decrease in the incidence of PTSD, participants rated their overall satisfaction with debriefing highly. Many of the studies in which participants reported that the debriefing was helpful also included additional interventions at multiple time points, rather than only one debriefing session.

Psychological debriefing, used interchangeably with the term critical incident stress debriefing (CISD), has also been described as a meeting between a rescue worker and a facilitator to help the worker talk through their feelings and reactions to the critical incident in which they had just taken part (Mitchell, 1983). Dyregrov (1989) further developed this definition into a group meeting intended to integrate personal experiences cognitively and emotionally in a group setting to prevent adverse reactions from developing. Facilitating this conversation within a group setting rather than individually was what differentiated PD from traditional crisis intervention.

Dyregrov (1989) identified key elements that enhanced a PD. He posited that PD needed to occur within a very small window of time after the traumatic event. Additionally, all participants within the group PD needed to experience a common stressor. He also recognized the need for the facilitator of the group to be trained and experienced in facilitating the debriefing process. In addition, the PD session required sufficient time to review all phases of the event thoroughly. This PD process evolved into what is currently recognized as critical incident stress management (Mitchell & Everly, 1996).

THE USE OF VIDEO FEEDBACK IN TEACHING AND LEARNING

As different styles of debriefing were tried and tested in various settings, new developments were underway in the technology landscape. In 1951, the video recorder was invented by Charlie Ginsburg. Shortly after its development, the video recorder was introduced as a resource for instruction and professional development (Fukkink, Trienekens, & Kramer, 2011).

In 1963, Stanford University became the first facility to use the new video recorder to provide video feedback for teacher preparation (Allen, 1966). Student teachers engaged in activities called micro-teaching, which consisted of a teacher engaging with one to five students. After five to 20 minutes of teaching, students evaluated the student teacher, and the student teacher and their supervisor reviewed the video recording. Then, the lesson was retaught to a new group of students to assess if teaching behavior improved.

In addition to these micro-teaching sessions, video recorders with microphones were mounted in over fifty classrooms within a 100-mile radius of Stanford University. Instead of live observations, the recorders were used to supervise and evaluate teachers. Video recording was then tested for use as an effective method for training counselors (Beck, Kantor, & Gelineau, 1963; Ivey, Normington, Miller, Morrill, & Haase, 1968; Poser, 1966; Rioch, Elkes, Flint, Usdansky, Newman, & Silber, 1963). Both graduate clinical psychology students and lay personnel were found to achieve levels of effective therapy that were equal to that of experienced therapists. Of further benefit, video recording with playback and feedback cut the training time to accomplish this to less than 100 hours of training.

Ivey and colleagues (1968) popularized the use of video recording in micro-counseling training for novice counselors, demonstrating highly positive outcomes. In their landmark study, they examined the effects of micro-counseling training with beginning counselors on three skills that are essential to counseling: attending behavior, reflection of feeling, and summarization of feeling.

In this manner, novice counselors engaged in brief three to five-minute counseling sessions with volunteer clients. Immediate video playback followed the micro-counseling session for self-analysis. Comparisons were made to a prerecorded expert modeling video, and supervisor feedback emphasized the positive aspects of the single skill being taught. The novice counselor would then engage in a second micro-counseling re-interview session, followed by a second review with the supervisor.

Based on Skinner's theory that our environment influences learning, debriefing was used with video recording as a type of positive reinforcement. It became an accepted practice to use video feedback, combined with approval from the instructor, to direct needed changes in behavior and confirm correct behaviors.

VIDEO FEEDBACK IN THE DIGITAL AGE

Five decades of integrating video in a variety of instructional and professional settings have proven to be a valuable method for providing visual and auditory feedback. Throughout this time, the use of video recording has shifted away from merely viewing oneself for self-analysis. Video recordings, in conjunction with feedback, is used to promote positive reinforcement of desired behavior, while redirecting behavior as needed (Fukkink et al., 2011). Video feedback reinforces effective behavior through a positive self-modeling approach and promotes reducing less effective behavior.

Two decades ago, students within primary, secondary, and higher education were the first individuals to be referred to as "digital natives" because they had grown up surrounded by the new technology of the evolving digital age (Prensky, 2001). These early digital natives now comprise much of today's healthcare learners and the professional workforce. Additionally, current simulation centers of all healthcare professions are filled with generations who have been entrenched in even newer technologies.

"Five decades of integrating video in a variety of instructional and professional settings has proven to be a valuable method for providing visual and auditory feedback."

One common feature of current technology is immediate feedback. With the proliferation of smartphone use and fingertip technology, video games played on cell phones, gaming consoles, and computers have become a way of life. This "Game Generation" is accustomed to and expects feedback immediately after a task is completed.

The Game Generation receives feedback through scoring and sophisticated visual and auditory stimuli. This type of feedback promotes the ability to rapidly learn to adopt new gaming strategies to be better gamers. Members of this generation are prime candidates for transferring this familiar method of learning to healthcare education because this immediate digital feedback has become innate.

VIDEO-ASSISTED DEBRIEFING

"The value of VAD is that as participants are guided through a theory-based debriefing with a trained debriefer, they can reflect on their experience in conjunction with the concrete evidence of a video recording."

In the healthcare professions, the technology of video recording, the use of immediate feedback, and engaging in evidence-based debriefing methods can be integrated together to strengthen and deepen the learning that occurs after a simulation learning experience. Video-assisted debriefing (VAD) is a teaching and learning method that integrates video playback with debriefing, bringing deeper meaning to the simulation learning experience.

The value of VAD is that, as participants are guided through a theory-based debriefing with a trained debriefer, they can reflect on their experience in conjunction with the concrete evidence of a video recording. Rather than relying on memory, which may have been skewed due to stress or the emotions of 'performing' in a scenario, the use of video allows participants to relive the experience.

As participants observe their performance, they can begin to verbally explore their thought processes and the decision-making skills that led to their actions. Within a group setting, the actions and behaviors can be reviewed and discussed. Rather than individual self-analysis, both the observer and active participants can explore each aspect of the simulation with a debriefer who has content expertise as well as training in debriefing.

Furthermore, through the power of media participants can analyze their non-verbal communication by observing their own facial expressions, body language, posture, and position. The participants can review and reflect on their teamwork, communication, and how each participant fulfilled their role in the simulation.

Reports of the use of video recording during debriefing have been increasing. Testing of the use of video playback and review during debriefing compared to oral debriefing alone have demonstrated mixed findings. It is challenging to interpret the findings of these studies as a whole because of the high variability of debriefing characteristics reported in these studies. Although many of these studies have not demonstrated statistically significant differences in the outcome measures, there are improvements in various aspects of learning in both healthcare education and professional practice. Included among these improvements are: improved communication (Beaird, Nye, & Thacker, 2017), improved time to recognize and solve a problem (Byrne et al., 2007), improved skills quality (Chronister & Brown, 2012), decreased learner stress (Grant et al., 2010), improved ability to self-evaluate critical thinking skills (Mikasa, Cicero, Jablonski, 2012), and improved resuscitation skills (Skare et al.,2012).

CONCLUSION

The collaborative discussion between a debriefer and simulation participants provides a safe environment that promotes reflection to deepen learning. Participants can assess the thinking and actions that occurred during a simulation learning experience while receiving guidance and feedback from the debriefer. By making sense of the experience and understanding their own knowledge and skills, participants can deepen their learning. Reviewing recorded key events of the experience provides a real-time assessment of their behaviors, enhancing participants' reflection and understanding. Video-assisted debriefing is a style of teaching and learning that is not only applicable to current generations of learners but is also an effective means for enhancing learning.

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