Simulation based learning: Indian perspective

"Experience is the adult learner's living text book." Adults learn best when they are actively engaged in the learning process by participating, role playing and experiencing events. This experience when accompanied with an intense emotional component results in long lasting memory and is called experiential learning. One of the major factors to consider in adult learning is that adults tend to base future actions on past experience. Several teachers such as Kolb, Gibbs, Grant, and Mardsen have put forward various theories about the process involved in adult learning.[1] Essence of these theories is that in experiential learning, change in practice happens when learning needs are identified and new learning is learnt and applied. Transformative learning is the process of correcting previous wrong presumptions and it takes place best through experiential learning.

Simulation is a controlled process of fostering experiential learning. Medical specialties, in particular anesthesiology, borrowed the idea of simulation from aviation industry. The similarities in terms of criticality of events, their recognition and the response among the two fields are striking. One of the driving forces for adoption of simulation in anesthesiology was the concern with patient safety. Simulation as a component of training is well-accepted and adopted in developed health care systems.

In India, there is still some resistance in accepting use of simulators as a viable tool or technique of teaching-learning. A consistent argument encountered to discount the role of simulators in India is that there is "plenty of patient material" for residents to learn. This argument obviously attempts to explain the role of simulators in training as applicable only where clinical material is limited overlooking its more significant appeal in fostering adult learning. However, this is set to change with increasing awareness of patient safety issues among general public. The medical fraternity too is sensitive to this awareness. The other driver for adopting simulation is to bridge the gap between requirement and opportunities for training. Training centers also tend to advertise simulators, especially the high-end ones, as an added attraction to their program.[2]

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There are several challenges facing us as we increasingly adopt simulators in training. The background of learners in India is quite different from their counterparts in the West. Role playing and problem based learning is introduced right from the formative years in most American and European systems and students make a natural transition to learning on simulators. This is not the case among our students who still tend to differentiate the "real" and the "unreal" and do not always succeed in adopting the lessons learnt on the simulator. This is also compounded by the lack of trained faculty for conducting a simulated session. Resources in terms of cost, manpower, and time are also a major concern in the Indian scenario.[3]

It is exciting times for training in anesthesiology as the advent of simulation is inevitable and they are here to stay. The advantages of incorporating their use in regular training are tremendous. They help us in learning to deal with high stake life-threatening situations where the margin for error is low, to retrain where retention of skills is important and known to regress in a very short time adult cardiac life support (ACLS).[4] Nontechnical skills, which comprise of behavioral aspects of health care workers like communication, can be assessed in a controlled atmosphere. Application of the principles of crisis resource management is particularly suited for a simulated environment. Rare events, like malignant hyperthermia, also submit themselves easily for simulated training. New techniques and equipment can be tested and validated.

The posttraining debriefing is the heart of a session on simulation. It maximizes the learning that occurs as a result of the simulated experience. Historically, it was first used in war fronts where soldiers would report back the events they faced and this served two purposes.[1] Debriefing helps to strategize for the subsequent attacks as well as serves as a de-stressor for the traumatic events the soldier faces during the course of combat. Since simulation sessions are also similarly associated with intense emotional effects, the debriefing session would provide as a de-stressor.

Let us see what is the current status of simulation based learning particularly, using the high fidelity human patient simulator (HPS). Two systematic reviews covering 10 years of simulation have reported that in all studies done on simulation based education (SBE), when compared to no intervention, SBE was associated with a large statistically significant effect for most outcomes in terms of knowledge, time and behavioral

skills resulting in a desired level of teaching and learning during these sessions. However, evidence showing transfer of this learning into practice is limited.[4,5] There is no evidence currently, which shows a positive impact on patient safety and quality of care as a direct consequence of simulation training. There is also a paucity of data regarding the research on debriefing methods and the appropriate method to assess the learner, the role and timing of introduction of hi-tech simulators in formal education.[6]

Department of Anesthesiology and Critical Care for several years have a high rate of attrition of residents in the first few months after induction comprising of introductory lectures and introductory theater postings. A feedback survey at our institute revealed that 50% of residents felt inadequately oriented towards the practice of anesthesia at the end of the 1st month. Majority of residents felt overwhelmed by the environment, equipment and procedures in the operating room. In response to this feedback we introduced a 2 weeks orientation program at the beginning of the postgraduate program. This program was based on a platform of a high fidelity HPS (HPS 10, CAE Healthcare, Germany). It included a total of 5 modules covering basic anesthesia, theatre setting and management of some common critical events faced in the operating room with specific learning objectives charted out for each of these sessions. A feedback in the form of standard questions and rating scales was taken from them at the end of each session. About 90% of the residents who attended felt the exercise was very useful. Among the facilitating factors identified, the recurring themes were hands on experience received in a safe environment and the ability to repeat until trainee satisfaction. They also felt better oriented toward real time practice of anesthesia.

Simulators enhance adult learning by creating an experiential environment and their use in our country is steadily increasing. We need to take an inclusive stance on adopting simulators in medical training without allowing a clash with the traditional methods of learning which, owing to abundant clinical material are our natural strengths. We are also favorably placed to conduct relevant research and generate data on the utility of simulators and that can only follow widespread acceptance, use and examination of simulators. Necessity being the mother of invention, it would be in our interest to harness our potential in developing low cost technology in simulation.

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Announcement

GLASGOW COMA SCALE IN INDIAN LANGUAGES

Glasgow Coma scale (GCS) is the most frequently used scoring system for neurologic assessment. The translation in Indian languages is now available at: www.isnacc.org. The same can be used for teaching and training purposes of various healthcare personnel.