Review Article

Fiction contract: its importance in simulation-based medical education

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ABSTRACT

Simulation-based education has become an integral part of education and training in high-risk professions and disciplines such as aviation, aerospace, military, nuclear power plants, medicine and healthcare. In the last decade, medical simulation has globally emerged as a powerful instructional technique across various specialties and disciplines. Despite its increasing popularity and various advantages, simulation-based medical education (SBME) poses a unique challenge, that is, realism. This is where the concept of fiction contract or suspension of disbelief comes into the picture. In this article we provide an overview of fiction contract in SBME including how can it be effectively addressed during training.

Keywords: Medical simulation, Medical education, Fiction contract, Suspension of disbelief, Realism, Simulation-based education

INTRODUCTION

Worldwide, medical education has evolved remarkably over the years with respect to quantum of information, its methods, delivery and impact analysis.[1,2] It is considered to be complex pertaining to evolving practice patterns, learner time constraints, concern for patient's safety and the constant influx of new medical information. The growing emphasis on patient care and safety has made medical education morally and ethically more challenging.[3,4] A sustained deliberate practice is required for the development of confidence and expertise among the learners. Learners have to go through significant complexities and difficulties in order to learn skills and practice on real life patients without compromising their safety, dignity and care. It is also cumbersome and sometimes challenging for the educators to expose the learners to the depth of clinical experiences necessary for the development of the accuracy, proficiency and expertise of the subject. The key to health education is acquisition of appropriate clinical skills. However, it is possible sometimes that learners may not stood up to the mark with respect to their clinical abilities due to inadequate training. In order to gain proficiency and accuracy of necessary skills, medical educational programs should be strongly armed with theoretical knowledge with adequate training and evaluation of acquisition of vital clinical skills. One of the major challenges faced by the learners is the application of theoretical knowledge in clinical practice in the management of patients.[5]

In the hour of need, simulation-based medical education (SBME) has emerged as a powerful instructional technique to address the challenge. Over the years, simulators also have become an integral part of education and training in high-risk professions and disciplines like aviation and aerospace, military, nuclear power plants, medicine and healthcare, etc.[6,7] Inclusion of simulation in the field of medicine and healthcare helps to replicate/amplify patient care scenarios through guided, interactive experiences, create and practice customed learning scenarios. allow feedback and assessment, serve as an alternative to real patients, hence, protects real

patient from the potential risks, instil confidence amongst the participants and promote inter-professional education.

These characteristics along with evolving technology has led to widespread acceptance of simulation-based education as an integral component of medical education across many disciplines in healthcare.[8,9] Some advantages of SBME are listed in Table 1.[10-12]

Table 1: Advantages of SBME.

S. no.	Advantages of SBME
1	Hands-on experience (both invasive and non-invasive procedures)
2	Continuous and repeated practice
3	Ability to allow errors to continue to their natural conclusion
4	Minimise risks to patients and learners
5	Reduce undesirable interference
6	Opportunity for same scenario to be accessed by multiple students, hence, providing similar learning opportunities
7	Planning clinical cases based on student need
8	Does not depend on patients' availability
9	Exposure to rare and complex clinical situations
10	Immediate feedback during debriefing sessions
11	Use of real medical equipment
12	Transfer of training from classroom to real situation is enhanced
13	Enhanced clinical decision-making
14	Increased retention and accuracy
15	Provides standards against which student's performance can be evaluated and diagnosed educational needs are enhanced
16	Fostering of multidisciplinary teamwork

ISSUE OF CONCERN: REALISM

Despite the increasing popularity of SBME and it's many advantages, different learners may have markedly disparate levels of experience and have difficulty in acceptance of simulation as a training modality. For enhancing learner engagement and to provide safe and effective educational experience, orientation of the learners to the medical simulation environment is a key step.[13,14]

Engaging in a simulated learning environment poses a unique challenge, that is, realism.[15] It is believed that the effectiveness of the simulation and learner's experience improve proportionately when the replication of the real world is precise in the case scenario.[16] Some learners may find the realism of the simulation scenario problematic. This may lead to negative impact on their willingness to participate in a scenario, affect the ability to immerse themselves in the scenario and decrease their engagement in the learning activity. Learner's perception of realism in simulation settings can have a large impact on their experiences and learning. This is where the concept of fiction contract / suspension of disbelief comes into the picture.

Fiction contract

A fiction contract is an explicit agreement between the learners and the instructor(s)/facilitator(s), which encourages the learners to put aside their disbelief and accept the simulated scenario as being real for the duration of the scenario. Effective execution of this agreement depends on equal involvement of both the parties. Each party has certain responsibilities, some of them are mentioned in Table 2. Establishment of a fiction contract / suspension of disbelief will ultimately minimise the blame that a learner can place on the realism of the scenario affecting their performance.[14,15,17]

Table 2: Responsibilities of simulation instructor and learners in fiction contract.

Simulation facilitator/ instructor	Learner/participant
Simulation facilitator should create goal-oriented scenario based upon measurable leaning objectives.	Play an active role in the given scenario.
Scenarios should be within the limitations of the simulated environment.	Fully engage in the simulation.
Scenarios should be as similar to the real-life case as possible.	Step into roles, connect with others in the scenario, and actively link to previous social, clinical, and psychological experiences.
Learner should receive enough clues to identify and solve the given case/problem.	Suspend judgment of realism for any given scenario in order to learn new skills, and gain experience.
Prior orientation to the simulation environment should be given.	Maintain a genuine desire to learn even when the realism of the scenario becomes questionable.
The session should be engaging, provoke interesting discussions and fosters reflective practice.	The simulated environment and patient can have certain limitations in mimicking real-life situation.
Do not set the learner towards the path of failure. Make the learner believe that simulation is a safe and learning space.	Treat the simulated patient with the same care and respect as in real clinical practice.
Identify performance gaps and helps close the gaps.	

Theories of realism

In a simulation environment, fidelity is a key element for realism and learner's engagement.[18] Many facilitators/instructors in the simulation community concern themselves deeply with the fidelity of their simulations, but when it comes to realism, the concepts are murky. It is important to understand that realism in simulation is not simply physical realism. For the participants to act and feel "as if" a simulation has real stakes and consequences, other factors like emotional, psychological, conceptual and experiential aspects play a vital role. Skilful blending of these aspects can help the participants to "suspend disbelief "

Over the years, various theories have been proposed with regards to realism and engagement, that explain the possible aspects which can affect a learner's experience (Table 3).

Table 3: Theories of realism.

Authors	Realism theory
Beaubien and Baker[19]	Suggested a model that was adapted from aviation simulation. They proposed that simulation realism is a multi-dimensional phenomenon. It describes environment fidelity, equipment fidelity and psychological fidelity.
Dieckmann et al[15]	Suggested interpreting theory from social sciences and advancing the theory of suspension of disbelief. It has three aspects; physical, semantical and phenomenal
Rudolph et al[20]	Suggested using terms physical, conceptual and emotional/experiential
Nanji et al[18]	Suggested that there are 3 kinds of fidelity which combine and produce a perception of realism for that particular learner. These three types of fidelity attributing to realism are physical fidelity, conceptual fidelity and emotional/Experiential fidelity

Table 4: High fidelity and realism.

High physical fidelity	High conceptual fidelity	High emotional/ experiential fidelity
Degree to which the simulation elements and components are sensed as approximating realism.	Degree to which the simulation scenario proceeds further in a plausible manner.	Degree to which the simulation scenario generates feelings of realism.
Develops kinaesthetic skills involving muscle memory.	Develops clinical reasoning and diagnostic problem-solving skills.	Helps in management of complex processes involving emotion and cognition.
Deals with the physical properties of the mannequins and the range of physiological and anatomical responses it can perform.	Best described by the disciplines of linguistics, philosophy, and processes such as diagnostic problem solving, decision-making, and prediction.	Simulation case scenario tapping into participant 's memory of the past to evoke similar responses in the present. It relates to holistic experience of the situation, and to actions and relationships of an emotional kind.
Properties of physical fidelity include visual, tactile, auditory, olfactory and orientation of the simulation elements.	Properties of conceptual fidelity include physiological response of the simulated patient and pharmacological response of the simulated patient	Properties of emotional/experiential fidelity include realistic time pressure, consequences and interactions
Example: pupil dilation, breath sounds, peripheral pulses, moulage, etc.	Example: If there is a case of anaphylactic shock, the heart will increase and blood pressure will decrease.	Example: A case scenario of anaphylactic shock reminding the trainee of a similar case he/she witnessed in the emergency department three months back.

Fidelity and realism

When it comes to the outcome, various authors have provided different opinions on realism and effectiveness of low, medium and high-fidelity models.[21-23] Within the same simulation fidelity, one learner may perceive a certain degree of realism, whereas another may experience a very different degree. Realism can be considered as a property of the learner's perception rather than a property of the simulation. It is usually a common belief that low fidelity builds knowledge; medium fidelity facilitates acquisition of competencies and high-fidelity aids in generating the action.[24] It is crucial to know the difference between the different aspects of fidelity.[25] Fidelity and its different aspects contributing in creating a real-life simulation environment are described in Table 4.

A model for the relationship of different kinds of fidelity to perceived realism and learning engagement in a health care simulation has been suggested which combines physical fidelity, conceptual fidelity and emotional/experiential fidelity. Fiction contract in combination with realism provides engaging environment for the learning and hence, effective learning.[14,18]

Clinical significance

Simulation-based training and learning has become an integral part of high-risk professions and disciplines like aviation and aerospace, military, nuclear power plants, medicine and healthcare, etc. Simulation has shown promising outcomes in healthcare and medical education across various specialties and disciplines. Providing trainees with an orientation to the medical simulation environment is an essential step in maximising their engagement in the educational experience. This pre-briefing allows instructors to clarify the goals and expectations for the simulation, establish a fiction contract/suspension of disbelief with learners, review the logistical details and plausibility of the session, express their commitment to respect learners' efforts and perspectives, build a psychologically safe setting in which the learner can become fully immersed in experiential learning and increase willingness and ability to engage in the learning experience.

The willingness to engage is affected by the ambient psychological safety of the whole education encounter of which the fiction contract is an important part. The fiction contract helps in mitigating the occasional shame or humiliation learners may feel if they do not perform well in front of their peers.

It is believed that if the learner observes that their instructor is playing fair with respect to both, the fidelity and the realism of the simulation scenario, they are more likely to focus on the learning goals and objectives at hand, and the same will be reflected on their performance in the simulated scenario. If the participants experience the simulation in an experientially and emotionally relevant manner and are able to make conceptual sense of the scenario despite its physical differences from a real-life situation. It is important to emphasise that the "realness" is not the primary focus; the learning and reinforcement of high-quality clinical practice is the ultimate outcome.

Both, the learner and the instructor /facilitator bring a set of responsibilities to the table to help to ensure rich learning environment, appropriate professional decorum and commitment to improvement

CONCLUSION

The fiction contact agreements range from implicit to explicit. When both co-exist and are adhered to, it will continue to allow the recognition of value that can arise from simulation-based learning in improving the care which is ultimately delivered to the real-life patients.

The main purpose of simulation-based medical education is for the learner to develop skills like judgment and reasoning, for the care of real-life patients. When it comes to the simulated environment and the patient, there are certain limitations in mimicking the real-life scenario. The realism of each simulated scenario may vary depending upon the learning goals and objectives for the session. Additionally, when there is a gap between the simulated reality and actual reality, it is the learner who needs to understand the goals and objectives of the learning session and focus on gaining experience and learning new skills.

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