

# Simulated Based Learning- An Innovative Strategy

## Abstract

Teacher acts as a mediator between learner and learning. The use of innovative methods by teacher helps to improve education, but also to empower people, strengthen governance and galvanize the effort to achieve the human development goal for the country. A number of emerging challenges demands innovative, flexible training solutions. Simulations are a promising tool for creating more realistic, experiential learning environments to meet these challenges. Simulation-based learning is a constructivist learning model that provides learners with an experience of working on usually simplified **simulated world or system**. This paper highlights simulation learning as an innovative learning.

**Keywords:** Simulated Learning, Active integration, Model.

## Introduction

As learning environments become increasingly complex and are used by growing numbers of learners (sometimes in the hundreds of thousands) and apply to a larger range of domains, the need for simulated learners (and simulation more generally) is compelling, not only to enhance these environments with artificial agents, but also to explore issues using simulation that would be otherwise be too expensive, too time consuming, or even impossible using human subjects. Simulation is a technique for practice and learning that can be applied to many different disciplines and types of trainees. It is a technique (not a technology) to replace and amplify real experiences with guided ones, often "immersive" in nature, that evoke or replicate substantial aspects of the real world in a fully interactive fashion. "Immersive" here implies that participants are immersed in a task or setting as if it was the real world. Simulations can be used to provide a fertile learning environment for students. The use of simulated activities in education is widely becoming recognized as an important tool in higher education. A simulation can be defined as a model of reality reflecting some or all of its properties. Robert Gagne identified the following properties of a simulation as crucial.

1. A simulation represents a real situation in which operations are carried out.
2. A simulation provides the user with certain controls over the problem or situation.
3. A simulation omits certain distracting variables irrelevant or unimportant for the particular instructional goals. Simulation = (Reality) - (Task irrelevant elements).

Simulation-based learning today mostly relies on usage of computers and advanced technologies to provide a near authentic experience for the user and enhance learning. Simulation-based learning is the discovery that system representations are often too complex and difficult for a novice to facilitate his learning. Even though principles of human cognitive structure and methods of reducing cognitive load were taken into account while designing a simulation, it has been shown that learners are still frequently unable to successfully relate multiple representation elements to each other. This issue can be described in the context of prior knowledge as well. Two successful ways of dealing with this issue have been proposed so far:

1. **Active Integration** of representations into complex system by the learner (for example link names of the elements to their symbol representations), and
2. **Model Progression**, or starting with a simple simulation models and then slowly increasing their complexity

## Benefits of Stimulation Learning

Simulation Learning offer several benefits which are adding excellence in higher education.

Simulations are often cheaper to create than their real life counterparts. Installing flight simulation software is cheaper than buying a



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practice jet for institutions. They are easier to construct. Simulations remove the element of danger from the situation. For example, you can "interact" with a Bengal tiger in a simulation quite safely. Simulations can be paused, whereas real life cannot. Pausing allows more time for students to assess what's going on. Simulations allow training to occur almost anywhere and anytime, and this flexibility can be used to reduce or eliminate many of the variable costs associated with traditional training, such as classrooms and instructors. Simulations also possess unique features that create the potential for instructional benefits not offered by other instructional mediums.

#### Activities to Promote Simulation Learning

Activities that promote learning tend to meet the following criteria:

1. They simulate an activity that is "real", and so it can be said that they are "virtually real". They simulate the activity so well that there is little difference between the simulated environment and the real one, and the same kind of learning experience can take place.
2. They are "hands-on", *involving* students so they become participants, not mere listeners or observers. Students learn better from their own experiences than having others' experiences related to them.
3. They are motivators for learning. Student involvement in the activity is so deep that interest in learning more about the activity or its subject matter develops.
4. They are tailored to the student. When simulations are designed specifically for their audience, they can take developmental requirements into consideration.
5. They are inspirational. Student input is welcome and activities are designed to encourage students to enhance the activity by contributing their own ideas.
6. They are developmentally valid. Simulations take into account the students' developmental level.
7. They are empowering. Students take on responsible roles, find ways to succeed, and develop problem solving tools as a result of the interaction.

#### Role of Teacher

The teacher's role used to be that of presenter of facts to students who absorb information like passive sponges. Most teachers will recognize that role as having changed. Simulations add a new dimension to the learning experience and develop the teacher's role even further. Lesson preparation varies with the type and complexity of the simulation. However, most expert users argue that instructional simulation work best when:

1. Teachers have a clear written statement in the course syllabus about the goals of the simulation and an explanation of how the simulation is tied to the course goals.
2. They can read all the supporting material for the simulation and do a trial run of the simulation before assigning the simulation to students, when possible.

3. Teachers make sure that Technological facilities support the simulation when are needed. Teachers integrate instructional simulations with other pedagogies such as Cooperative Learning or Interactive Lecture Demonstration.
4. Teacher should engage students and motivate them for active participation.

#### Role of Students

Students learn through simulation learning when they are actively engaged.

1. Students should predict and explain the outcome they expect the simulation to generate.
2. Every effort should be made to make it difficult for students to become passive during the simulation. Students must submit timely input and not rely on classmates to play for them.
3. Teacher- student interaction plays an important role in the pre-simulation discussion with the class.

Post-simulation discussion with students leads to deeper learning. The instructor should:

1. Provide sufficient time for students to reflect on and discuss what they learned from the simulation.
2. Integrate the course goals into the post-simulation discussion.
3. Ask students explicitly asked how the simulation helped them understand the course goals or how it may have made the goals more confusing.

#### Conclusion

The modern era is the era of innovation and creativity. To deal with generation Y students, there is a need of innovative teaching strategies to channelize their energies and to create their interest in education. Stimulation helps to prepare students to deal in the environment of 21<sup>st</sup> century. The use of simulation helps to create a realistic environment and a powerful learning experience that promotes cognitive, affective, physical and social development of the student. Simulation Learning is the demand of our education system to make or future builders.

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P: ISSN NO.: 2321-290X

RNI : UPBIL/2013/55327

Shrinkhla Ek Shodhparak Vaicharik Patrika  
Vol-III \* Issue-I\* September -2015

E: ISSN NO.: 2349-980X

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