

Simulations as Learning & Teaching Tools

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Simulations

- n What are they?
 - Examples of experiences or scenarios
- n What forms do they take?
 - Animation
 - Video
 - Dummy interface to software
 - Virtual reality

Why Use a Simulation in Your Teaching?

- n Facilitate the learning process by allowing the learner to engage in active experimentation as well as build confidence and experience in a new skill
- n Available for the student to try 24/7 and repeatedly
- n Saves resources (both staff time and money)

Properties of a Good Simulation

- n Near reality as possible
- n Problem based
- n Interactive
- n User friendly
- n Engaging
- n Motivating

Three Examples of Simulations

- n Dummy software interface
- n Simulated biology experiment
- n Video based ethics committee meeting

Dummy software interface

- n Designed with an emphasis on building a learner's confidence in using a piece of software.
- n It allows the learner to experience using the software to its best effect in a controlled environment with limited input options, so the learner is guided through the process.

These sorts of simulations have been shown to equip the learner with the skills necessary, more effectively than a traditional list of instructions.

Simulated Biology Experiment

- n Allows the student to engage in active experimentation without the cost and staff time needed to allow the learner to do the experiment for real.
- n The student can manipulate the virtual experiment to explore of different experimental conditions on the final outcome.

Allows the learner to develop a deeper understanding of the concepts behind the experiment and how they can influence the outcome. Encourages experimental and problem based learning.

Video Based Ethics Committee Meeting

- n Consists of a series of videos of actors discussing ethical issues of research projects.
 - n Allows student to take part in a committee meeting and influence the discussions presented by the simulation.
- Ensures every student takes part in the debate and enters the discussion. Encourages students to think critically about issues that are opinion based.

Students Reactions to Simulations

- n Students overwhelmingly like them:
 - Reassure students that they are doing the right thing before doing it for real.
 - Allow them to try an activity repeatedly with different variables.
 - Allow all the advantages of e-learning e.g. flexibility of time, place and pace of learning.
 - Ensure all students engage in the activity.