

Instructional Simulation

Nomenclature, Viewpoint, and Bias

Ted Ward and S. Joseph Levine, 1974

Instructional Simulation is the current but inadequate term denoting a particular class of instructional techniques. Instructional simulation refers to instructional techniques built upon the dynamics of

- 1) Games
- 2) Interpersonal interactions
- 3) Pseudo-real environments (as single or combined dynamics).

The importance of *instructional simulation* is becoming evident because of four major motives in the developing field of instructional technology: The need . . .

1. To increase transfer of training;
2. To increase the flexibility of scheduling, staffing and operation of a learning environment;
3. To increase intensity, involvement, and potency of learning opportunities; and
4. To provide experiences through which affective learning objectives can be realized.

Following are the contentions that underlie the development and evaluation of instructional simulation:

1. Instructional simulation is a promising way to solve certain important instructional problems, particularly those in which affective and/or psychomotor involvement is essential.
2. The design of instructional simulation demands a clear grasp of the objectives to be learned and a command of instructional resources, combined through a creative process of relating to and capitalizing on human characteristics.
3. The designer of instructional simulation draws selectively from the dynamics of games, interpersonal interaction and pseudo-real environments.
4. Evaluation of instructional simulation is more concerned with the degree of transfer of learning than with the degree of "reality" in the situation.
5. In the present state of the art, two basic questions require more investigation and understanding:
 - a) For what sort of learning tasks is instructional simulation feasible
 - b) For what sort of learning tasks is instructional simulation preferable to other modes of instruction?

Instructional Simulation includes . . .

1. Games

An experience can be called a *game* if three elements are present:

- a) Competition against people or criteria
- b) Specific modes of pay-off (concept of winning)
- c) Arbitrary rules (in contrast with natural dynamics)

The *game* elements individually and collectively are tailored essentially to the learner's involvement. The degree to which the elements of the game accommodate and engage real-life emotional needs of the

learner determines his/her degree of involvement. A game which does not accommodate the learners' (or players') emotional needs will not be played.

2. Interpersonal Interactions

Social learnings involve interpersonal interactions. Interpersonal interactions usually contain strong intrinsic motivations. Designs for role playing can be highly structured, spontaneous, or in between. Participants in role-playing can be induced to function more *affectively* or more *cognitively*, depending upon the structure of the situation and upon the interpersonal responses of the other participants. Feedback in role-playing situations comes more from the interpersonal transactions than from the structure of the situation. In role playing, arbitrary forms of feedback and pay-off are usually not used.

3. Pseudo-Real Environments (environmental simulation)

Major values . . .

- To utilize the laws and rules of a natural environment (rather than arbitrary rules) to the optimum in terms of cost and safety.
- To provide pay-off similar to that in real-life.
- To utilize less costly or more accessible substitutes for the technological equipment required in the real-life performance of the task for which a person is being trained.
- To promote the trainee's involvement (physical, intellectual and emotional) through high degree of identification with the real-life task.
- To alter the parameters of time and space in order to accommodate lower levels of skills.
- To alter the parameters of time and space to provide sequences or schedules not commonly or predictably encountered in real life.
- To alter the parameters of time and space in order to delay or accelerate feedback data.
- To manipulate the intensity of the problem or confrontation in order to accommodate lower levels of emotional readiness.
- To provide experiences that would be hazardous if first encountered in real life.

In the statements above, the terminology is intended to have the meanings as follows:

<u>Situation:</u>	The environment—its constraints, its potentialities and its problem or problems with which the trainee must interact.
<u>Problem:</u>	The particular part or parts of the situation to which the trainee must respond.
<u>Action:</u>	The steps, implemented decisions, or acts taken by the trainee in dealing with the problem.
<u>Feedback:</u>	Data on the consequences of the action <i>Positive feedback</i> —data on the “success” of a step or steps in the experience, leading to reinforcement, encouragement, and other positive affects; as in real life, can be sometimes misleading in terms of the main goal's pay-off. <i>Pay-off</i> —the consequences of successful accomplishment or fulfillment of the task. <i>Negative feedback</i> —data representing the undesirable consequences or inappropriate actions of the trainee. <i>Task failure</i> —the consequences of unsuccessfully coping with the task.
<u>Learning:</u>	Changed behavior
<u>Instruction:</u>	Human activity designed to produce learning (including the storage and representation of such activity in mediated form).